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THE CANCER PROBLEM

JOHN J. MORTON, M.D.
Rochester, N. Y.

This article is the first of a series to be published by the American Medical Association in cooperation with the American Cancer Society. The series is designed to aid in the early diagnosis of cancer and thereby to gain more effective results in treatment. When complete, the series will be published in book form by the W. B. Saunders Company under the sponsorship of the American Medical Association and the American Cancer Society.

The problem of cancer is a challenge to the scientists of the world. It is still wrapped in mysteries about which there exist only the foggiest notions.

Physicians have a considerable fund of knowledge in regard to the agents which can bring about the cellular changes known as cancerous. These inciting factors may be classified as physical, chemical or biologic in nature. The physical agents include trauma, heat, cold, ultraviolet light, roentgen rays and radium; the chemical agents comprise inorganic as well as the more complicated synthetic organic compounds, internal secretions and vitamins; the biologic agents are the helminths, bacteria and viruses. The evidence that these agents may initiate the growth of cancer has been gathered from human cancers which arise naturally from exposure to them; from occupational and industrial cancers, and from the actual production of cancers in experimental animals by the use of these materials.[1]

Surface epithelial growths, sarcomas and visceral cancers can now be induced in the experimental laboratory by numerous inciting agents.[2] It has been established beyond any doubt that potentially growing cells can be made to undergo cancerous change. The carcinogenic agents must as a rule be applied for long and unremitting periods. The cells must be damaged by the agent but not destroyed. The type of tumor produced appears to be a chance phenomenon depending on the type of cell which happens to be first affected. Differences due to the hereditary constitution are manifested as increased susceptibility or increased resistance to certain agents. But if the stimulus is sufficiently strong and is applied continuously enough even hereditary resistance can be broken down, as was apparent from the first medical martyrs to the roentgen rays. The time of application and the type of stimulus are more important than the age of the person. When a sufficient number of stimuli have been given to the cells some profound change takes place in cellular behavior. No additional irritation is necessary, and the inciting agent may be withdrawn; the change in the cells has become fixed, and they proceed to develop in an abnormal fashion. The border line between normal and abnormal growth is difficult to define. The microscopist cannot with certainty identify the beginning of abnormal cellular reaction. The inciting factors, whatever their nature, set off an intracellular mechanism which is self perpetuating. The cells descended from these abnormal cells have undergone a change, and it is permanent. The new pattern is followed by the succeeding descendants, which maintain themselves uncontrolled. Cancer is a growth of cells without a definite purpose. It is a lawless proliferation which serves no useful function. Worse than that, it is a growth of cells which is harmful, as it steals and traps the nutriments necessary to the survival of the host.

The problem of cancer from the scientist's point of view is to get an understanding of this abnormal behavior. One is accustomed to an orderly process in growth and in repair of tissues. There is a give and take among the cells, and each carries out its function with precision. In both growth and repair the balance between the development and its arrest is smooth and accurate. Even though this is recognized, the fundamental changes in these normal processes have yet to be discovered. It is not known what these regulatory mechanisms are and how they are brought into play. Why the cells in a healing wound reach a certain stage in growth and then stop is a mystery still. With such a poor understanding of the fundamental conditions for normal growth, the scientist's problem is magnified by trying to decide how growth has gone wrong and has become abnormal. In cancer the problem is to determine what has gone awry inside the cells. It is agreed by every one that the inciting agents set off an intracellular change. Factors which bear on the cell behavior under these conditions may be biologic or chemical in nature. It is necessary to take into consideration the effects of hereditary constitution, the intracellular metabolism, the chemical composition of the cells and their environment and the virus problem.

By studies on heredity in the lower animals it is certain that strains can be produced in which there is exhibited a high and a low incidence of cancer. Selective inbreeding has made it possible to intensify the characteristics of susceptibility to or resistance against neoplastic tendencies. Relatively pure strains have been developed in this way, and the variants have been reduced. Hybrids from the high and low strains can be analyzed by sorting out the factors and back crossing in breeding. It seems established that under the ordinary conditions of life certain families tend to develop special types of cancer. These cancers appear

From the Department of Surgery, the University of Rochester School of Medicine and Dentistry.

1. Morton, J. J.: The Etiology of Cancer in the Light of Our Present Knowledge, Ann. Surg. **106**: 539-561, 1937.
2. Morton, J. J.: The Present Status of Carcinogens and Hormones in Cancer Research, Surg., Gynec. & Obst. **72**: 345-362, 1941; Progress in Cancer Research, Connecticut M. J. **9**: 167-177, 1945.

at stated age periods. Maude Slye [3] developed families of mice with cancers limited to certain organs. If strains descended from the male side are contrasted with those descended from the female side of these families, it is possible to determine that there are extrachromosomal as well as chromosomal influences. The internal secretion of the ovary has been shown to be extrachromosomal for cancers of the breast.[4] MacDowell [5] has demonstrated that some leukemias of mice have both a chromosomal and a nonchromosomal mechanism. Susceptibility and resistance to cancer must be multiple factors in inheritance. If inciting agents are applied repeatedly for sufficient time the susceptibility can be hastened. Tumors which would come out naturally at a later time can be forced to appear earlier. Even in those strains of experimental animals which have a decided resistance to the development of cancer, the inciting agents can break down the resistance. In this sense cellular susceptibility and resistance are relative terms depending on the interplay between heredity and environment. Susceptibility to cancer may never appear if the animal is protected from adverse stimuli in its environment. Strong [6] has performed a most interesting experiment by selecting toward resistance against painting with a chemical carcinogen—methylcholanthrene. By breeding from these strains resistant to the chemical it was possible to pass the age periods when the common types of cancer usually occurred. This resulted in the appearance of internal cancers hitherto never recorded in these mice. The internal cancers had been masked by the earlier lethal types; hence the mice had not survived until the internal cancers could appear.

From the point of view of human cancer it is most difficult to get convincing proof of hereditary patterns. In the first place there are too few members in any family to afford the numbers necessary for statistical treatment. Second, the human race is not composed of pure strains. The variables are uncontrolled, and the hybrid human strains cannot be analyzed. There have been reports which suggest that the incidence of cancer is high in certain families—Napoleon's, for instance. Warthin [7] put together a number of family histories which he considered had bearing on this problem. None of these reports to date will stand a critical analysis, as there is always a possibility that the pathologic studies were inaccurate or were purely hearsay. Nevertheless, the clinician observes many families in which the occurrence of cancer is greater than one would expect from chance alone. A long range study of a large number of families might contribute greatly to knowledge in this field. When some of the more unusual types of growth are found in only a few families it is certainly difficult to explain except on a hereditary basis. This has been true for retinal neuroblastomas and for families with multiple polyposis of the large intestine. Macklin [8] claimed that cancers of a definite type in similar organs and at the same age period in members of the same family strongly support the theory of a hereditary background. Related persons showed the same type of tumor ten times as frequently as did unrelated persons, according to Macklin's studies.

A knowledge that cancer has occurred before in a family should be weighed carefully by the attending physician. This is one form of cancer control which any one may practice. If, for instance, cancer of the lip runs in a family, it is only good sense for the members of that family to refrain from smoking (Warthin [7]). There is a real danger in adding this stimulating factor to a susceptible hereditary cell pattern. When one person in a family has had a cancer, others of the same sex in the family are more likely to have the same type. Cancers of the female sex organs would not be expected to occur in the males of the family, and vice versa. When it is considered that 60 per cent of cancer is diagnosed after the patient is 60 years of age, many members of the family may have succumbed before reaching that age. Accordingly, some persons who have inherited the factor for cancer development never live long enough to test their heritage. These statements show some of the difficulties in establishing heredity studies in the human family. Studies on identical twins should furnish ideal material for a study of the constitutional factors. McFarland and Meade [9] claimed that tumors in homologous twins tended to be similar, symmetric and simultaneous. This is well illustrated by Militzer's [10] report on gastric cancer and by Munford and Linder's [11] report on cancer of the breast. Although it is difficult to establish by exact scientific methods, there is a certain amount of evidence that cancer does tend to run in families. However, the data are too incomplete and unsatisfactory to be stressed at present. It cannot do any harm, however, for persons who have had cancer in their family to be on the alert for the same type of growth in their own case. It would certainly be good preventive medicine for physicians to examine periodically all immediate members of a family for the types of cancer known to arise therein.

MISPLACED CELL RESTS

Cohnheim's hypothesis that cancers may arise in misplaced cell rests may offer explanation for some of the teratomatous types of cancer. There are such out of place cells found throughout the body. In Meckel's diverticulum, for instance, one may encounter gastric and pancreatic cells. Pancreatic and large intestinal rests are frequently found in the stomach. Gastric mucosa is relatively common in the lower part of the esophagus. These cells are certainly not the usual foci for cancers of the esophagus, stomach and intestine. The teratoid tumors may better be regarded as disturbances in embryologic growth in which conditions have favored the development of cells out of their usual position (Spemann [12] and Needham [13]). It has been shown by Gardner [14] that testicular interstitial cell tumor fragments will remain dormant for six or seven months in nonestrogenized hosts. If the animals are given additional estrogen these fragments become rapidly growing tumors. This experiment gives some support to the displaced resting cell theory. It does not explain

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12. Spemann, H.: Embryonic Development and Induction, New Haven, Conn., Yale University Press, 1938.
13. Needham, J.: Biochemistry and Morphogenesis, New York, Cambridge University Press, 1942.
14. Gardner, W. U.: Some Influences of Hormones on the Growth and Persistence of Transplanted Testicular Tumors, Cancer Research **5**: 497-505, 1945.

what really occurs within these testicular cells to make them change to the cancerous condition.

Needham's [13] theory that cancer is an escape from the individuation field is interesting. By the individuation field he means that there are areas in developing embryos which have been proved experimentally to control the types of tissue ultimately destined for these areas. This effect of one area of tissue on another is beautifully demonstrated in experimental amphibian embryologic study. Control is exerted by the individuation fields so that certain cells can produce only their proper types and not something else. Needham [13] has stated that there is no evidence of persistence of individuation fields into adult life. This is indicated by the lack of mammalian power of regeneration in the adult state. Since most cancer occurs in the adult state this theory would hardly apply to the majority of cancers.

Chromosomal aberrations have been repeatedly observed in cancerous tissues. These abnormal mitoses have been thought to be the starting point of cancerous growth by many scientists. Elaborate studies by Levine [15] showed giant cells with polyploidy in cancer tissues of animals and man. He expressed the belief that these nuclear and chromosomal phenomena were responses to chemical and physical influences. It did not seem plausible to him that these phenomena formed the etiologic basis for cancer. Lewis,[16] Spencer [17] and Earle [18] have brought forward evidence from tissue cultures that such aberrant nuclear changes are merely an expression of abnormal growth. Many such cells died before they reproduced. It is apparent that such cells are less stable than the normal ones, and it is unlikely that they caused the cancer. Growth-promoting and growth-inhibiting substances have been extracted from growing tissues by numbers of investigators. So far, this type of work has been difficult because of the mixture of normal with malignant cells. The extracts have been crude, and nothing definite has resulted from these investigations with respect to the causation of neoplastic growth.[1] The study of the intracellular metabolism of cancer cells was given a great impetus by Warburg's [19] work in 1925. But it was soon found that some of the normal tissues acted in a fashion similar to the malignant ones; some of the malignant cells also did not follow the same pattern. This led to a more cautious evaluation of these results, and what appeared to be fundamental differences between malignant and normal cells have not been proved.

Voegtlin [20] studied the biochemistry of malignant tissues. He concluded that a high aerobic glycolysis did not strictly differentiate malignant tumors from other tissues. The claim that cancerous cells derived their energy for growth exclusively from glycolysis was equally open to question. Malignant tissues contained the same enzymes as normal tissues—i. e. cathepsin, polypeptidase, dipeptidase, arginase and nuclease. Greenstein [21] confirmed this but found some quantitative differences. The enzymes of the tumor tended to resemble those of the embryonic tissue rather than those of the adult tissue of the organ. Tumors possessed a primitive economy, and the oxidate enzymes appeared to be rather low. The tumors functioned to the limit of their available catalytic systems and possessed no reserves as did normal tissues. Whatever the inciting agents or the tissues of origin, cancers in a given species converged toward a common tissue type of enzymatic pattern. A high rate of glycolysis, an increased aqueous content and a low activity of cytochrome were characteristics of practically all tumors in all species studied.

Studies made in the laboratories here disclose that the metabolism of protein is disturbed in malignant disease. The tissue of the tumor has a higher priority for nitrogen than do the normal tissues. This accounts for the weight loss in cancer—i. e., a protein starvation of the normal tissue cells.[22] The disturbance is also shown by electrophoretic patterns of the blood in patients who have malignant disease. In a high proportion of such patients there is a decrease in the albumin fraction and a proportional increase in the globulin fraction. There is a decreased fibrinogen and a failure of gamma globulin to increase proportionally to the other globulins. There is an increase in the alpha-1-globulin.[23]

SOMATIC MUTATION

Many writers believe that the essential change from a normal to a malignant cell is by somatic mutation, a mutation not affecting a sex cell but any cell in the body (Murray,[24] Strong,[25] Little [26] and Furth [27]). There are arguments for and against this assumption. Transplantation experiments in hybrids show that mutational changes occur in the tumor itself. The mutational change is obviously somatic because the neoplasm is composed of somatic and not germinal cells (Strong [25] and Little [26]). The change to cancer may take place in different ways. In some cases it is after prolonged repeated insults to tissues with a slowly developing change. At other times it appears to be an abrupt, almost explosive change after the long preparation. Supporters of the somatic mutation theory favor the latter type of origin. Furth [27] has stated that "if differences in the transplantation pattern are based on genic differences, then this abrupt, discontinuous, and irreversible change is not an abnormal differentiation but a somatic mutation." Rous [28] has opposed the idea on the ground that the somatic mutations recognized so far have not acted as malignant transformations. The cells have remained orderly and have formed functioning structures during development. This is especially true in the botanic field, in which the mutations are minor in character and not in the nature of tumors. Caspersson and Santesson [29] are opposed to somatic mutation because they believe that transformation to cancer is through a long series of steps. Lacassagne [30] also has stated that chromosomic or somatic cell mutations become manifest within a relatively short time

15. Levine, M.: Studies in the Cytology of Cancer, Am. J. Cancer **15**: 788-834 and 1411-1494, 1931.
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30. Lacassagne, A.: Les cancers produits par les rayonnements electromagnetiques, Paris, Hermann & Cie, 1945; Les cancers produits par les rayonnements corpusculaires, ibid., 1945.

after the action of the causative agent, while radiation cancers always show a long laten. period.

One of the characteristics of the neoplastic change is that the cells attain autonomy. This has been interpreted as independence, a freedom from control and absence of participation in the other functions of the body. In the definition of autonomy, the lipoma is often cited as an example. Although the cells of this tumor cannot be differentiated from the other adipose cells of the body, it remains independent of gains or losses in weight no matter what happens to the host.[31] Autonomy, however, is a relative term because some extremely malignant tumors appear to be under control of normal enzyme systems. This is illustrated by the effect of castration or administration of estrogens on cancer of the prostate. Greene and Lund [32] have defined autonomy as the ability of the cancer cell to grow in an alien host after previous transplant to the anterior chamber of the guinea pig or rabbit eye. This is an interesting speculation, but it is not a practical test. Some of the most malignant tumors observed in this clinic have failed to show autonomy by this definition, although they were recurrent, metastatic and lethal in a short time. These tumors were grown in tissue culture and were not infected but would not grow in the anterior chamber of the eye after numerous trials.

When it was first demonstrated that a cell-free filtrate could produce sarcomas in chickens it seemed that a solution of the intracellular problem was at hand. Since this original work, tumors have been produced in frogs, rabbits and mice (milk factor) by similar filter-passing agents. These agents have been generally regarded as similar to the viruses. The known tumor viruses have a decidedly limited pathogencity. Each produces a neoplasm of a single kind (Rous [28]) unless transferred to exceedingly young animals and zigzagged in different species. Under these latter conditions there may be successive alterations (Duran-Reynals [33]). Opinions have shifted back and forth as to whether all tumors might have a virus origin (Oberling [34] and Rous [35]). Some authorities have definitely opposed such an idea (Murphy [36]). The proponents of the virus theory of cancer growth must assume that viruses are present in many tissues of the body. They remain dormant until some inciting agent calls for them to initiate the malignant change. If the virus is to be considered as the cause for all types of cancer it must explain those arising in response to radiation, chemical applications and the like. Even the most ardent supporters of the virus origin of cancer recognized the absurdity of their position when they were faced with the development of many different types of malignant tumors induced by implanting embryonic tissues and a potent chemical inciter (Rous [28]). The difficulties of the rapid evolution of cancer when viruses are the inciting agent must also be overlooked. The failure to demonstrate any virus in many different forms of neoplasm requires elaborate argument as well. It is claimed that the conditions must be exactly right to evoke a response from viruses—not only in regard to the quantity of the virus but also in the preparation of the cells to receive them. When viruses cannot be demonstrated it is often possible to get indirect evidence of their presence by the antibody reactions elicited by them. But even here there are more failures than successes in many different forms of cancer. The difficulties of handling the virus origin of cancer reside in the fact that it takes living cells to demonstrate them. No one seems to be absolutely clear as to the exact status of the viruses as living entities. There is no question that they accompany living tissues but perhaps only as other metabolites of the cytoplasm and nucleus. From the evidence available at present it must be concluded that some viruses are inciting agents for the cancerous change. In this respect they do not differ essentially from any other chemical, physical or biologic inciters except in rapidity of action.

CHEMICAL CHANGES

Claude [37] has found by cytologic studies that organic structures exhibiting the property of self duplication contain nucleic acid of one type or the other. Caspersson and Santesson [29] showed that self reproducing systems were characterized by nucleic acid groups of polynucleotide character. The combination of protein with a polynucleotide group seemed to be distinctive of these self reproducing systems. These authors made a careful comparison of normal and malignant growth of cells using ultra violet absorption spectrums. By model experiments the nucleic acid and protein content of cellular preparations were determined from the absorption curves. Chemical changes common to malignant tumor cells are an increased amount of nucleic acids; also an increase in pentoses and phosphates. There is a diminution in the heat coagulable protein fraction while the non-heat-coagulable fraction is the same or greater. There is an increase in the diamino acid content and in the water content. A pronounced accumulation of the basic amino acid was noted. Common to all cancer cells is an intensely stimulated system of protein formation. In normal growth this system of protein formation is always inhibited when the organized growth of tissue so requires. This inhibitory mechanism does not function in cancer cells, and they are set for unlimited increase in substance. The disturbance which characterizes malignant growth consists of an absence of the inhibitory mechanisms which act on normal cells. This appears to be an intracellular mechanism of fundamental importance.

The problem of cancer from the scientist's point of view is to find out the nature of the intracellular change. The scientist must work on the cell structure. He must have the tools to enable him to seek out the mysteries of cell growth. It will require such apparatus as the electron microscope, the ultra centrifuge, Tiselius apparatus and refrigerated baths. There should be tissue cultures and transplantation equipment. There should be a metabolism ward for steroids, gonadotropins, protein and amino acid determinations as well as mineral metabolism studies. A team of specially trained physicians, physicists, chemists and biologists would accelerate the progress. A careful weighing of the evidence should restrain enthusiasms from outrunning facts in drawing conclusions, especially in this field in which so many persons are concerned.

Every practitioner of medicine, regardless of what field he is engaged in, will at some time have to deal with cancer patients. Consequently it behooves him to learn how to diagnose cancer when it is encountered. His training should start in medical school, where he will see patients in the outpatient department and in

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36. Murphy, J. B.: Experimental Approach to the Cancer Problem, Bull. Johns Hopkins Hosp. **56**: 1-31, 1935.
37. Claude, A.: Biol. Symposia **10**: 111-130, 1943.

the clinic. In some medical schools the malignant diseases are given equal prominence in the teaching with the developmental defects, obstructive lesions, trauma and infections. The general practitioner should take as thorough a history as is necessary in the individual case. When certain symptoms and signs are present a thorough examination must be performed, keeping the possibility of cancer in mind, especially in patients over 40 years of age. The skin should be carefully scrutinized for nodules and moles. It is surprising how often a harmless-appearing, pinhead-sized bump on the exposed skin turns out to be a basal cell, a malignant melanoma, or an epidermoid cancer. The latter type of lesion often appears to be full of fluid, and its growth has been relatively rapid. Lumps in the breast, especially small ones, call for critical judgment. Aspiration of such a lump may or may not be helpful. In my opinion it is often impossible to diagnose a small single lump by any method except biopsy. In this way some of the earliest cancers of the breast are found. Indigestion, loss of appetite and loss of weight point to a serious lesion of the gastrointestinal tract which warrants more than passing notice. Aspiration of the stomach contents may reveal anacidity or blood. Stool examination may also be of the greatest assistance if blood is apparent in repeated specimens. It frequently is the best guide to knowledge that there is some lesion of the stomach, duodenum, ampulla or large intestine. When the patient complains of a weak, tired feeling; a loss of appetite, particularly for meat, and a mild kind of indigestion or stomach discomfort that comes either before or after eating he may be giving the clue to cancer of the stomach (Engel [38]). Change in the bowel habits, either toward irregularity, increasing constipation or diarrhea or in any way differing from the normal pattern should call for further study. Anemia or blood in the stools may point to trouble in the cecum or elsewhere in the intestinal canal. Bleeding from the urinary tract, uterus, rectum or nipple will cause the patient to seek the physician's advice. The physician in such instances can apply the three glass test to determine what part of the urinary tract is at fault. He should do a speculum examination with his patient in stirrups to determine the character of the pelvic organs. Rectal bleeding may be due to many causes. Frequently the early cancer is within reach of the examining finger. Proctoscopic examination should be performed to rule out lesions in the rectum, and failing to find a lesion in this way, roentgen-barium study is next in order. The symptom of bleeding from the nipple calls for thorough examination of the breast with transillumination sometimes of great assistance. Persistent pain in the bone usually means trouble, and the roentgen ray must be used, remembering that it may take a few weeks to show bony defects. Difficulty in swallowing or chronic hoarseness demand examination by a barium swallow or use of the bronchoscope. Chronic dry cough may not always be due to cigaret or other smoking. Bronchoscopic examination with washing out of the bronchi with isotonic solution of sodium chloride may reveal an early stage of cancer of the lung (Clerf and Herbut [39]). Roentgenograms may also be helpful. Papanicolaou's technic for examination of vaginal washings is useful. It requires considerable experience with the method before the physician can be sure of his diagnosis.

When the history and physical examination have been completed and the special laboratory studies assembled, it may be necessary to get the assistance of a specialist in a special field. The roentgenologist is almost essential to every practitioner. The urologist with his cystoscope; the otorhinolaryngologist with his laryngoscope, bronchoscope and esophagoscope, and the gastroscopist with his instrument may be required for a diagnosis. The neurosurgeon can frequently localize tumors by ventriculograms or myelograms. Furthermore, the manifestations of cancer may be complicated by syphilis. The presence of this disease should be ruled out by examination and treatment if necessary. Within one month if the lesions have not disappeared other measures should be considered and the diagnosis doubted. Even with all the care which one can take some lesions may be overlooked or too small to visualize. If the physician is alert and follows his cancer suspect cases diligently he may find it necessary to get repeated examinations before he can prove or disprove his diagnosis. Sometimes it is necessary to have an exploratory operation to settle the issue, as it is usually the hidden internal cancers which give difficulty. This is especially true of small intestine, pancreatic and retroperitoneal lesions.

DIAGNOSIS

Differential diagnosis at exploration must be made with accuracy. No diagnosis of cancer should ever be made without confirmatory microscopic evidence. The problem of the biopsy whether by knife excision, punch, aspiration or cautery excision is a specialist's concern. However, it is difficult to reconcile the idea that biopsy is harmless in some areas of the body and dangerous in others. Certainly punch biopsy of an intra-abdominal lesion would leave viable cells with easy access to the peritoneal cavity. In such an area complete excision would seem preferable.

Finally, the general practitioner has been asked to make periodic examinations of well persons to discover early cancers. This method will certainly reveal many of the superficial lesions requiring attention if the examination is good. It will not usually help with the internal cancers. This has been the experience with well person clinics conducted in general hospitals. Many lesions of the breast and uterus have been noted. A majority of them have turned out to be benign, but some early malignant growths have been found. Mini films of the chest have also revealed a number of pulmonary lesions in a survey of all patients entering the Rochester Municipal Hospital. Periodic examinations give the patient a sense of security. The physician, however, should warn his patients that the examination applies only for a limited time. Cancer may develop before the next annual check-up unless the patient is made aware of the warning signs and heeds them. No one patient can be examined periodically for all the types of tumor which may occur. Macklin has advised that the patient be especially watched for the types of cancer most commonly observed in the members of his family. This would seem reasonable.

The cancer problem from the specialist's point of view is entirely different. The specialist is a person practicing within a restricted field. He is regarded as superior to the average man within that domain, as he has concentrated his attention to a narrowed focus. The specialists in cancer are concerned with the accurate diagnosis and the selection of the proper treatment for any given patient. Cancer specialists include radiotherapeutists and surgeons interested in the general and

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39. Clerf, L. H., and Herbut, P. A.: Bronchogenic Carcinoma Diagnosis by Cytologic Study of Bronchoscopically Removed Secretions, J. A. M. A. **130**: 1006-1012 (April 13) 1946.

specialized fields. Their basic training must be broad so that they are acquainted with the fundamentals on which their therapeutic practice rests. It is absolutely essential that a radiotherapeutist know the physics of radiation. He must be mindful of the importance of measurement of ionization effects, the different modalities for delivering radiation to tissues, the secondary rays, back scatter and effects on biologic products. Similarly, the surgeon must be grounded in the reaction of tissues to injury, asepsis and antisepsis, the fundamentals of refined technic, the preoperative and postoperative preparations necessary to avoid reactions, the treatment of shock and unexpected complications and the use of antibiotics. Surgical practice is not simply a matter of cutting and tying, as some wartime surgery under primitive conditions seemed to be (Seagrave [40]). The end result must be considered. The patient must be returned to a condition of useful living. To remove nine tenths of the contents of the upper part of the abdomen may be spectacular surgery but it hardly is conducive to enjoyable existence. Some organs may be removed in their totality without untoward effect. Total gastrectomy now being advocated for gastric carcinoma affects one of the borderline organs in this regard. Some patients are miserable after this treatment while others seem to get along somehow with added medicaments.

The surgeon must learn that there are many things to be considered in addition to the mechanical removal of the diseased tissues. The surgical method itself depends on the concept of the spread of cancer. For the glandular types of cancer of the breast, gastric and intestinal cancer, cancer of the rectum and prostatic and thyroid cancer, dissection of the original focus with the draining lymphatics in one block has been regarded as essential to a thorough removal. When the surgeon has been ahead of the spread from the growth his results should be excellent. In some forms of cancer in which block dissection was formerly employed it has now been found unnecessary. Cancers of the lip, mouth and cheek, for instance, should have the original lesion eradicated and the regional nodes dissected at a later date if required. Cancers of the skin vary greatly in their handling, depending on their microscopic type, degree of differentiation and duration, age of the patient, size of the lesion, presence or absence of palpable nodes and other conditions. In some situations the original focus can be resected and the nodes watched periodically; in others it is safer to perform prophylactic dissection of the nodes. In other forms of cancer block dissection is impossible—brain tumors, kidney tumors, primary liver, pancreas and adrenal tumors, bladder tumors. Tumors of the uterus, cervix, ovary and lung occupy a middle zone in which partial dissection of the lymph nodes usually can be done. Extensions of the field of operability have been practiced by surgeons who have dared to sacrifice portions of involved organs by including them in wide removal.

The surgeon should know enough pathology to have a very definite idea of the biologic attributes of cancers. There are tumors noted for their high malignancy, such as malignant melanomas, tumors of the posterior half of the tongue, tonsil and nasopharynx and tumors of the esophagus, breast, stomach, lung and cervix. Cancers noted for their low malignancy are those of basal cell origin, mixed tumors of parotid, adamantinomas, epidermoid cancer of the skin, cheek, lip and anterior half of the tongue, labia, body of the uterus, penis and adenocarcinoma of the large intestine. Reversion toward embryonal form, anaplasia, connotes increased ability for existence. Recurrences tend to be more anaplastic and less easy to handle. The more anaplastic tissues are more likely to metastasize; and metastases are likely to appear more anaplastic than the original tumor. Degrees of histologic differentiation have made it possible to arrange some tumors in a scale which is helpful in prognosis. This applies well to large groups but can be used only with great reserve in individual cases. The gross character of the tumor is also of significance, those tending to grow toward the patient being more malignant than those tending to grow away—the ulcerating versus the papillomatous types. Systemic responses to the malignant growth such as hemorrhage, sepsis, starvation, loss of weight and disturbed nitrogen balance should be recognized and corrected if possible.

TREATMENT

A surgeon should not be so enthusiastic over his form of treatment that he cannot see clearly that other forms of therapy might be useful. When he has decided on operative intervention it should be well planned, careful and thorough. There should be no compromise with cancer, and tissues will have to be sacrificed when necessary. The surgeon should never tie his hands by committing himself to a promise before operation. The patient should trust to his surgeon's training and judgment. The surgeon should not give up a case as hopeless until he is sure. He should not be positive in his diagnosis and prognosis without microscopic evidence. Fixed growths are rarely operable, and digging them out is not good surgical practice. Palliative operative intervention often prolongs the life of the patient in comfort by overcoming obstructions. A radical operation should be performed even in the older person if it is well considered. But it must be remembered that growth is much slowed in the aged and radical operation may not be necessary. Selection of the proper treatment for any patient should be always considered carefully and decided by the type of cancer present. Radiation therapy is indicated in small basal and some epidermoid skin cancers, some cancers of the lip, tongue and floor of the mouth, and the larynx, cancer of the cervix, lymphosarcomas, some hemangiomas, recurrent cancers of the breast and, postoperatively, in highly anaplastic cancers of the breast. In Ewing's tumor of bone it has a place, and in benign giant cell tumors it is frequently of high value. Some laryngeal cancers respond favorably to radiation therapy, as do some polypoid rectal growths, some thyroid carcinomas and medulloblastomas, some pituitary growths and rare gliomas.

Radiation has now practically no value in malignant melanomas, carcinomas of the esophagus, the stomach and large intestine and those of the lung. Most osteogenic sarcomas and practically all chondrosarcomas are resistant to it, as are fibrosarcoma, rhabdomyosarcoma and synovial sarcomas. Combined surgical and radiation therapy may prove successful, as in bladder lesions; also by making the tumor accessible to radiation in some cases, as in antral carcinomas. Most tumors of the brain do not respond favorably to radiotherapy with the exceptions already noted. Sensitivity to radiation is influenced by the degree of anaplasia, the cellularity and the character of the tumor bed. Inaccessibility, malnutrition, cachexia and infection are all unfavorable for radiation therapy, although sloughing lesions may be healed locally by its use. Generalized spread of carcinoma is unsuitable for radiotherapy in general. Radia-

40. Seagrave, G. S.: Burma Surgeon, New York, W. W. Norton & Company, Inc., 1943.

tion should be withheld over an area when a plastic closure is considered which will use that area. In such cases the surgical procedures should be performed and radiation therapy used later. Radiation has been used for castration effects against tumors which have supposedly a gonadotropic origin. In such instances surgical castration is considered more thorough by most clinicians. Close cooperation among the radiotherapeutist, the pathologist and the surgeon is the ideal combination for handling the clinical problems of cancer.

Neither the surgeon nor the radiotherapeutist can be too proud of the end results in the treatment of cancer. They both make use of the best tools which are available to them, but they realize that there is no ideal treatment for all cancers. All too many patients still reach the specialist when all that he can offer is palliation. This he must not refuse, but he would much prefer to offer a better chance of cure when the lesion is so small that diagnosis is not yet possible. Palliative measures must not be scorned. Many a patient has been made comfortable by radiation and by surgery. The removal of an ulcerating lesion from the gastrointestinal tract often leaves the patient grateful and happy although metastases have taken place. Surgeons are prone to regard the results as failures if the patient ultimately dies of cancer. On the other hand it is expected that patients with hypertension and cardiac disease will ultimately succumb from these disorders, but the physician feels happy if he can carry them along comfortably for a few years. In my experience patients with cancer have lived for five to seven years without discomfort, carrying on their daily rounds. In such cases I cannot regard their treatments as failures.

INCIDENCE

The cancer problem from the public's point of view should be everybody's problem. The people have been bombarded for several years with propaganda designed to get them interested in their own welfare. The efforts have been intensified in a nationwide advertising campaign over the last three years. The public has been told that cancer is a dread disease especially in the older age groups. It has been represented as the second cause of death. Approximately 184,000 persons died from it in the United States in 1946. Something must be done about this disease, as there is as yet insufficient knowledge regarding its origin and how it can be controlled. Even though treatment at present is admittedly inadequate, a certain proportion of victims may be rescued if they can be brought to their physicians while the lesion is small. Under such circumstances a definite proportion of patients can be cured by surgical means or by radiation or by a combination of the two. The cancer will be eradicated and it will not return. The public must become cancer conscious. It must approach this problem in a rational manner. It must recognize that there is a job to do. Few Americans have ever quit in such circumstances. The physicians of America have launched a crusade to learn more about cancer. They need the help of the public for education, for service and for research. They need the intelligent cooperation of everybody. The people of the country must see to it that their physicians examine them for cancer. They must make it possible for the physicians to organize cancer detection or well person centers in their communities where examinations can be made. They must provide adequate equipment. They must help in the care of those who have the disease. They must see to the comfort of those who cannot be cured. They must make it possible for young scientists to train themselves to find out the causes of cancer. They must see to it that fanatics do not hinder these scientists by making animal experimentation difficult or impossible. The public should be so anxious to solve the riddle of cancer that every possible lead should be followed no matter what the cost.

The life of man is short. The acquisition of knowledge takes a long time. The technics of treating cancer even as imperfectly as it is now treated require years of hard study—averaging ten for a general physician and fifteen for a specialist, at a salary scale that would not interest an ordinary laborer. The finest young scientists of America have always worked for a pittance and many have left the field of cancer research because they could not afford to stay in it. America—the public—should be ashamed that its scientists do not rate as high as its entertainers. The public has responded magnificently to the appeal for cancer funds. The money has been well spent. The country is large and much more is needed. Progress will be slow because the problem of cancer is not an easy one. The public must accordingly be tolerant and must not demand results. Results will be forthcoming in time and with adequate public support and cooperation it may be sooner than appears possible at present.

The cancer problem from the patient's point of view is a personal one. He is concerned with every possible aspect of the problem. He wants to know how he can be protected from the disease. The answer to this first question cannot be given. The only thing that can be suggested is that he see his physician for advice and examination. He can be warned to do something if any of the danger signals appear. Sores that do not heal, particularly about the tongue, mouth and lips; a painless lump or thickening, especially in the breast, lip or tongue; irregular bleeding or discharge from the nipple or any natural body opening; progressive change in the color or size of a wart, mole or birthmark; persistent indigestion; persistent hoarseness, unexplained cough or difficulty in swallowing, and any change in the normal bowel habits—any of these call for investigation and decision by the physician. The patient wants to know if cancer is inherited. He wants to know if cancer is contagious. The answers to these questions are in the negative. If he has a lesion which requires surgical treatment or radiation he is naturally concerned about the time necessary for him to be in the hospital and when he can return to his work. This varies with the type and extent of the disease. He or some one in the family will ask embarrassing questions about the prognosis. This the specialist can answer only from his experience. It is the most difficult of all questions to answer as there is no certainty about it. The early lesions are usually successfully treated and the answers can be hopeful. The late lesions are especially difficult to evaluate as there is so much variability. In reply to questions in the latter group the specialist must be evasive or he will make bad mistakes. The patient may live far beyond the estimated time or he may die much more quickly. The physician's estimate can at best be only a guess which he should honestly let the family know. Finally, the patient is the one who should be most concerned that new advances be made to help him and others afflicted by cancer. It is for him to insist that money be available for new investigations because only in this way can new frontiers be opened and a hopeful future unrolled.

260 Crittenden Boulevard.

CASE-FINDING FACTORS IN CANCER DETECTION CENTERS

HOWARD W. JONES Jr., M.D.
and
W. ROSS CAMERON, M.D.
Baltimore

The recent stimulus to cancer control in the United States, as a result of the efforts of the American Cancer Society, the United States Public Health Service and various state health departments, has eventuated in the opening of a large number of cancer detection centers throughout the country.

A cancer detection center represents a case-finding clinic to which only persons who are free from symptoms are supposed to be admitted for examination. If a patient presents himself with a symptom referable to a specific organ or system, he is not examined at a detection center, but is referred to his physician or a clinic where he may be dealt with according to his symptoms.

From Nov. 1, 1946 to July 31, 1947, a period of nine months, 1,709 persons were examined in detection centers in the state of Maryland. In this group, seventeen carcinomas were found, a prevalence rate of 1 per cent. Statistics published to date from various detection centers in other states have revealed cancer in as high as 7.6 per cent [1] of all persons examined.

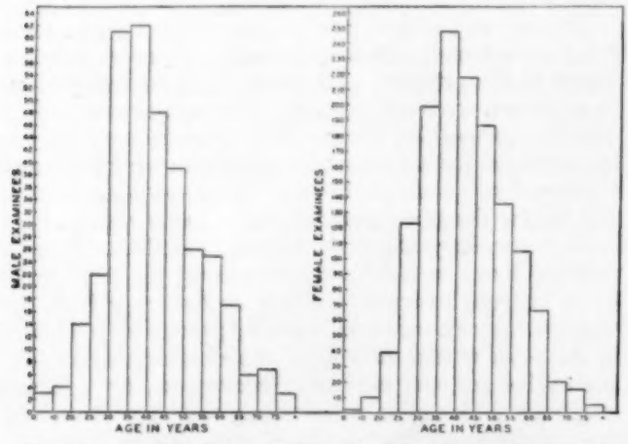

Chart 1.—Age distribution of 336 male and 1,373 female examinees, Maryland Detection Centers, Nov. 1, 1946 to Aug. 31, 1947.

The purposes of this communication are as follows: (1) to calculate from available data the number of cases that would be expected among admissions to detection centers; (2) to point out that, in our experience and in that of others as reported in the literature, the number of cases discovered among persons examined at detection centers exceeds the expected total, and (3) to suggest factors that may be responsible for this discrepancy.

THE CALCULATION OF EXPECTED INCIDENCE OF CANCER

One may calculate the expected incidence of cancer in any group of examinees by determining the following factors: 1. The sex and age of persons who present themselves for examination. For our Maryland experience, this information is shown in chart 1. 2. The expected prevalence rate of cancer by sex and age. These data were obtained from Dorn [2] and are set forth in table 1. 3. The percentage of cancers, in each sex and age group, which are detectable by examinations at detection centers.

It is important to realize that not all cancers are detectable by the type of examination offered in the average cancer detection center. In view of the fact that completeness of examination differs from center to center, it is exceedingly important in interpreting case-finding results to know the kinds of cancers which might be expected to be discovered as a result of this type of examination. During the period under review, examinations in detection centers in Maryland should have revealed unsuspected cancer of the buccal cavity and pharynx, larynx, cervix, breast, male genital organs, rectum and anus and skin. Nondetectable cancers include those of the digestive organs and peritoneum, except the rectum and anus, the respiratory system except the larynx, the body of the uterus, the urinary organs, the brain and other parts of the central nervous system.

Unfortunately, prevalence rates are available only for broad anatomic groups, and for calculating detectability it has been necessary to consider as detectable, in men, cancer of the buccal cavity, the genital organs and the skin; and in women, cancer of the buccal cavity,

TABLE 1.—*Prevalence Rates of Cancer per Hundred Thousand White Population by Sex and Age* *

Age	All Sites	
	Male	Female
Under 10	10.3	8.1
10-19	15.3	11.2
20-24	25.4	20.2
25-29	39.5	62.2
30-34	60.5	131.2
35-39	93.0	270.4
40-44	185.4	439.0
45-49	321.4	685.6
50-54	528.2	844.1
55-59	863.5	1,132.3
60-64	1,327.2	1,423.7
65-70	1,851.9	1,698.5
70-75	2,420.0	1,930.4
Over 75	3,011.3	2,206.1

* Taken from Dorn.[2]

TABLE 2.—*Calculation of Expectancy of Detectable Cancers for Three Hundred and Thirty-Six Male Examinees. Maryland Detection Centers, Nov. 1, 1946-Aug. 31, 1947*

Age	Examinees	Prevalence per Million	Detectability, Percentage	Expectancy × 100,000
0- 9	4	10.3	27	8.1
10-19	4	15.3	31	18.6
20-24	13	25.4	43	139.7
25-29	25	39.5	51	497.2
30-34	58	60.5	49	1,765.2
35-39	62	93.0	41	2,421.7
40-44	48	185.4	39	3,463.2
45-49	39	321.4	41	5,003.6
50-54	36	528.2	39	5,353.9
55-59	25	863.5	39	8,414.3
60-64	17	1,327.2	43	9,700.4
65-69	6	1,851.9	49	5,441.9
70-74	7	2,420.0	53	8,9.8.2
75 and over	3	3,011.3	59	5,329.5
Total	336			56,481.5

Expectancy $\frac{56,481.5}{100,000} = 0.56$ cases.

1. L'Esperance, E. S.: Cancer Prevention Clinics, M. Woman's J. **51**: 17, 1944; The Early Diagnosis of Cancer, Bull. New York Acad. Med. **23**: 394, 1947.

2. Dorn, H. F.: Illness from Cancer in the United States, Pub. Health Rep. **59**: 33, 65 and 97, 1944.

uterus, breast and skin. This information is shown graphically in charts 2 and 3.

In tables 2 and 3 the expected prevalence rates and detectability rates as developed by Dorn have been applied to the 1,709 examinees who presented themselves at the Maryland detection centers. In table 2, it will be seen that among the 336 males only 0.56 case of detectable cancer would have been expected. In table 3 it will be noted that among 1,373 females the expectancy was 4.9 cases.

CANCERS DISCOVERED IN MARYLAND

Among 336 males examined in Maryland, eight carcinomas actually were found; one of the lip and seven of the skin. Among 1,373 females examined, there were nine carcinomas; three of the cervix, two of the breast and four of the skin.

It is important to note that these were the totals found at the end of the examination at the detection center and after various laboratory reports had been received. It is also pointed out that cases in which

TABLE 3.—*Calculation of Detectable Cancer Case Expectancy for 1,373 Female Examinees, Maryland Detection Centers, Nov. 1, 1946-Aug. 31, 1947*

Age	Examinees	Prevalence per 100,000	Detectability, Percentage	Expectancy × 100,000
0- 9	2	8.1	20	3.2
10-19	10	11.2	26	29.1
20-24	39	20.2	49	382.0
25-29	123	62.2	64	4,880.6
30-34	199	131.2	70	18,248.3
35-39	248	270.4	76	50,889.6
40-44	218	439.0	74	70,814.5
45-49	187	685.6	73	93,509.4
50-54	136	844.1	70	80,348.8
55-59	105	1,132.3	63	74,883.1
60-64	66	1,423.7	61	57,293.6
65-69	20	1,698.5	54	18,338.4
70-74	15	1,930.4	53	15,343.5
75 and over	5	2,266.1	51	5,778.3
Total	1,373			490,744.4

$$\text{Expectancy } \frac{490{,}744.4}{100{,}000} = 4.9 \text{ cases.}$$

cancer was suspected but was not confirmed by a subsequent pathologic report were not included.

It is obvious that patients with symptoms suggestive of cancer but with negative pathologic and other laboratory data need further study after completion of the examination at the detection center. The responsibility for this additional work rests with the patient's physician. At the present time, a study is being made of the final diagnosis for all persons examined in detection centers and referred to physicians. Preliminary reports indicate that a positive diagnosis was subsequently made for at least 2 persons; for one the diagnosis was cancer of the body of the uterus and for the other a cancer of a lymph node of the neck from an undetermined primary site. It is obvious that when these and other cases are added to those diagnosed at the end of the examination at the detection center, a substantially higher prevalence of cancer will be recorded.

CANCERS DISCOVERED AS REPORTED IN LITERATURE

In a review of the literature the following experiences are noted: (*a*) Schram [3] reported five carcinomas among 632 men and nineteen among 3,577 women. The age distribution is not dissimilar to that among our examinees, so that she reported about five times the expected prevalence in men and twice the expectancy in women. (*b*) Webster and colleagues,[4] in a report of examination confined to the breast and pelvis, reported no pelvic carcinomas and ten malignant growths of the breast among 1,600 women. The age

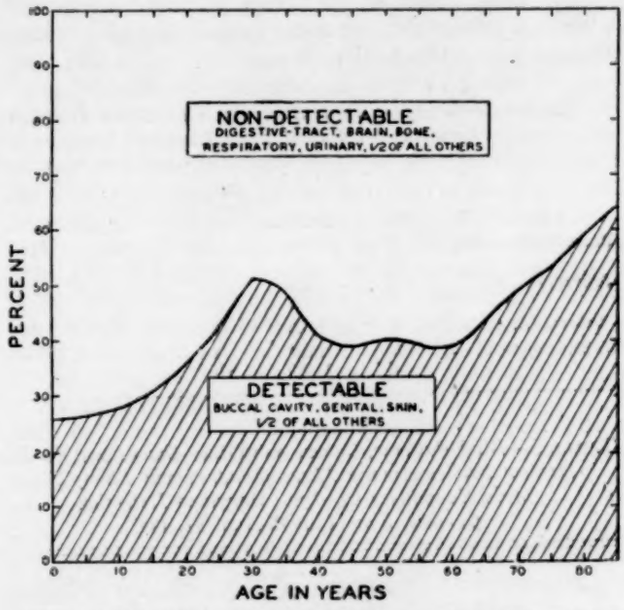

Chart 2.—Detectable and nondetectable cancer among white males by age and primary site groups. Rearranged from Dorn.[2]

distribution is not indicated, but if it is assumed that it is comparable with the other groups, such findings represent five times the expected prevalence based on a prevalence rate of one hundred and thirty-one carci-

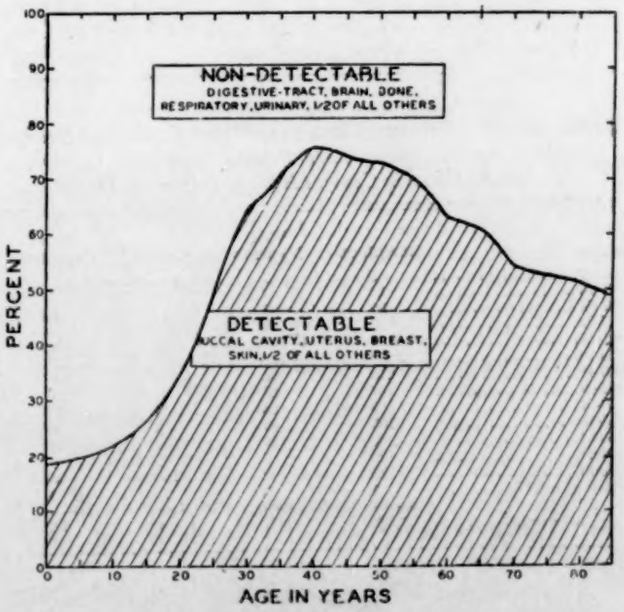
NON-DETECTABLE
DIGESTIVE-TRACT, BRAIN, BONE, RESPIRATORY, URINARY, 1/2 OF ALL OTHERS
DETECTABLE
BUCCAL CAVITY, UTERUS, BREAST, SKIN, 1/2 OF ALL OTHERS
PERCENT
AGE IN YEARS

Chart 3.—Detectable and nondetectable cancer among white females by age and primary site groups. Rearranged from Dorn.[2]

nomas of the breast per hundred thousand persons examined. (*c*) L'Esperance [1] reported one hundred and eighteen cancers among 11,950 women and thirteen

3. Schram, M. W. S.: The Organization and Results of Health Maintenance-Cancer Prevention Clinics, J. A. M. A. **129:** 275 (Sept. 22) 1945.

4. Webster, H.; Phillips, W. H.; Nodelhoffer, L.; Oliver, M., and Parsons, E.: Examination of the Breasts and Pelvic Organs in Apparently Well Women, Illinois M. J. **89:** 239, 1946.

among 1,329 men, or three and six times the calculated prevalence rates respectively.

These data, summarized in table 4, suggest that persons examined at detection centers represent a selected group.

DISCUSSION OF POSSIBLE SELECTIVITY FACTORS

The first factor which comes to mind as possibly playing a role in this selectivity is that persons examined may not be truly well patients.

TABLE 4.—*Summary of Data Showing That More Detectable Cancers Are Found Than Expected*

Author	Sex	Examinees	Theoretic Prevalence (Dorn [2])	Prevalence Found	Ratio
Jones and Cameron..	M	336	0.56	8.0	14
	F	1,373	4.9	9.0	2
Schram [3].....	M	632	1.1	5.0	5
	F	3,577	12.8	19.0	2
Webster [4].....	F	1,600	2.1	10.0	5
L'Esperance [1].....	M	1,329	2.2	13.0	6
	F	11,950	426.0	118.0	3

TABLE 5.—*Well Patients, Cancer and Other Conditions Needing Medical Advice Among Three Hundred and Thirty-Six Male Examinees by Age. Maryland Detection Centers, Nov. 1, 1946-Aug. 31, 1947*

Age	Examinees	Well Patients	Cancer	Other Conditions
0- 9.....	3	2	..	2
10-19.....	4	2	..	2
20-24.....	13	8	..	5
25-29.....	25	21	..	4
30-34.....	58	40	..	18
35-39.....	62	42	..	20
40-44.....	48	29	..	19
45-49.....	39	23	..	16
50-54.....	26	13	2	11
55-59.....	25	14	1	10
60-64.....	17	10	2	5
65-69.....	6	3	..	3
70-74.....	7	2	1	4
75 and over.....	3	0	2	1
All ages.....	336	209	8	120

TABLE 6.—*Well Patients, Cancer and Other Conditions Needing Medical Advice Among 1,373 Female Examinees by Age. Maryland Detection Centers Nov. 1, 1946-Aug. 31, 1947*

Age	Examinees	Well Patients	Cancer	Other Conditions
0- 9.....	2	1	..	1
10-19.....	10	7	..	3
20-24.....	39	25	..	14
25-29.....	123	62	..	61
30-34.....	199	102	2	95
35-39.....	248	120	..	128
40-44.....	218	95	3	120
45-49.....	187	87	..	100
50-54.....	136	63	1	72
55-59.....	105	53	2	50
60-64.....	66	29	1	36
65-69.....	20	8	..	12
70-74.....	15	3	..	12
75 and over.....	5	2	..	3
All ages.....	1,373	657	9	707

A careful review of the Maryland histories showed that a certain percentage of persons examined did in fact have symptoms. Among the 8 men in this series with carcinoma, 5 were not aware of any abnormality. On the other hand, 3 called the examining physician's attention to the fact that a specific lesion existed. Among the 9 women with cancer, 6 persons after close questioning did in fact reveal symptoms suggestive of malignant growth.

It would be statistically inaccurate to eliminate these cases from the cancer group unless all similar cases are eliminated from the entire series of 1,709 persons examined, as there is no reason to believe that the cancer group is weighted with respect to this factor.

The cancer group would indeed be weighted if the detection centers were used by physicians for reference of persons suspected of having cancer, but this is not the case.

Furthermore, the evaluation of the symptom status of examinees is difficult. Before registration each of the Maryland examinees stated that he or she was free from symptoms, but after more detailed questioning may have been found to have symptoms which indicated the possible presence of illness. It is a truism that almost every one at almost any time can be found to have one or more symptoms of disease, however minor. Statistics derived from supposedly symptomless persons, therefore, more frequently reflect the thoroughness of the examining physician's history taking than any indication of the presence or absence of illness.

One would like to compare the symptom status of all examinees with a similar group of nonexaminees, for it is our opinion that examinees represent a group that is weighted by those with symptoms. This group, however, may not necessarily have a higher prevalence of cancer, but it appears to have a high illness rate from other causes.

The data also suggest that there may be other selective processes in operation. It is understandable that close personal contact with the disease might well promote awareness of the problem and lead persons with such experiences to seek assurance and protection in the detection centers. This indeed seems to be the case, as a high proportion of persons examined gave a history of cancer in relatives, and accumulation of data over the years may tell us whether a family history of cancer is of more importance than is at present admitted. It is to be noted that the points of view presented in foregoing paragraphs assume the correctness of Dorn's prevalence rates. It is admitted that these are subject to the errors inherent in such statistics. In our opinion, however, it seems unlikely that gross inaccuracies exist.

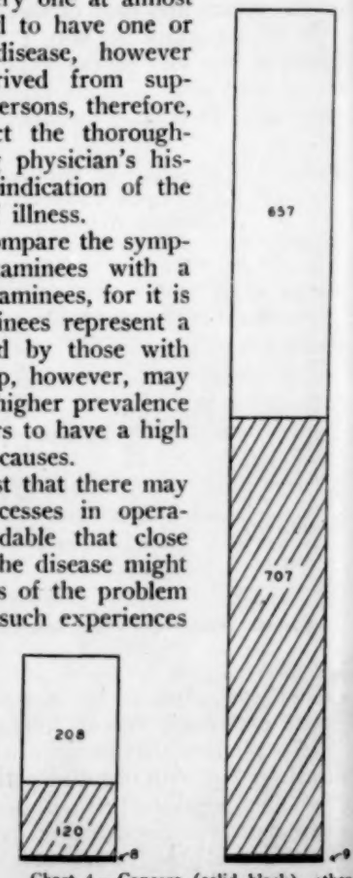

Chart 4.—Cancers (solid black), other conditions (hatching) and well patients (solid white) among 336 males and 1,373 females examined at Maryland Detection Centers, Nov. 1, 1946 to Aug. 31, 1947.

INCIDENTAL FINDINGS AMONG EXAMINEES

An important by-product of examinations at cancer detection centers is the finding of minor to serious conditions which need medical attention. Tables 5 and 6 and chart 4 show that 36 per cent of men and 51 per cent of women were advised to report to their physician for other conditions needing medical advice. As previously mentioned, some of these persons were subsequently found to have cancer, but, due to the

limitations of detection examinations, it was not possible to make such a diagnosis in the centers.

Not infrequently, the discovering of these incidental conditions is as important to the patient as the finding of unsuspected cancer.

SUMMARY

During a period of nine months, 1,709 persons were examined in cancer detection centers in Maryland; of these 336 were men and 1,373 were women.

By means of the expected prevalence and detectability rates developed by Dorn, it is calculated that 0.56 case would have been expected in the male and 4.9 cases in the female examinees. Actually eight carcinomas were found among the men and nine among the women.

These figures, as well as those collected from the literature, show a prevalence rate of ten to fifteen times that expected in males and twice the expectancy in females.

These data seem to indicate that there are factors at work in the selection of the type of patients presenting themselves for examination in cancer detection centers. Evidence suggests that one factor may be the presence of minor complaints and another the occurrence of cancer in the immediate family of the examinees.

An incidental, but important, finding was that 36 per cent of men and 51 per cent of women examinees were referred to their physician because medical or surgical conditions other than cancer were discovered.

HEADACHE

Its Physiologic Causes

STUYVESANT BUTLER, M.D.
and
WILLIAM A. THOMAS, M.D.
Chicago

It is likely that the symptom of headache confronts the general practitioner more frequently than any other. It is something that often carries with it mental anxiety as well as physical discomfort because it contains an element of fear coupled with an "inescapable" type of pain. It is found as part of many conditions, functional as well as organic, but unless its cause is obvious it is passed over by the physician, and other symptoms, often less annoying to the patient, are given chief attention and treatment. Only in recent years have headaches been classified clearly as to cause and their mechanisms clarified by Wolff's brilliant observations.[1]

We feel that a discussion of these mechanisms and causes of headache will give a working clinical classification which will clarify this common and disabling symptom. The purely basic and mechanistic classification of Wolff seems too broad, while Horton's[2] is too complicated for everyday use.

Unfortunately headache is usually a purely subjective symptom, so that its cause must be found not by gross physical examination but rather by careful and often repeated questioning; sometimes physiologic tests with specific drugs with known effect on capillary size must be used for their effect on production or relief of a specific headache. It is necessary to discover the character and mode of production of each headache as an individual entity before its cause may be diagnosed and treated.

From the Presbyterian Hospital.
Read before the Section on General Practice of Medicine at the Ninety-Sixth Annual Session of the American Medical Association, Atlantic City, N. J., June 13, 1947.

1. Wolff, H. G.: Headache: Mechanisms and Differential Diagnosis, in MacBryde, C. M.: The Analysis and Interpretation of Symptoms, Philadelphia, J. B. Lippincott Company, 1944, pp. 52-84; Clinics 2: 1394 (April) 1944.
2. Horton, B. T., and Macy, D.: Treatment of Headache, M. Clin. North America 30: 811 (July) 1946.

PERCEPTION AND PATHWAYS OF PAIN

Certain basic facts concerning perception of pain must be clarified at the outset. The following structures in the head have been shown by Wolff to be pain sensitive (table 1): (1) the tissues covering the cranium, especially the cranial arteries, and (2) certain intracranial structures, (*a*) parts of the dura mater, (*b*) the dural arteries, (*c*) the venous sinuses and some of their tributaries and (*d*) the cerebral arteries at the base of the brain; (3) certain nerves that carry pain to consciousness: the sensory branches of the fifth, ninth and tenth cranial nerves and the first, second and third cranial nerves. It must be emphasized that certain other structures are definitely not sensitive to pain. These are the cranium itself, the parenchyma of the brain, the pia, arachnoid and most of the dura, the ependymal lining of the ventricles and the choroid plexuses.

As to the distribution of pain in the head and its path to consciousness, it has been shown that stimulation of pain-sensitive structures on or above the superior surface of the tentorium cerebelli produces pain in front of a vertical line across the ears, and is carried by sensory branches of the trigeminal nerve; structures below the tentorium produce pain which is felt behind the ear and the pain is carried by branches of the hypoglossal, vagus and upper cervical nerves.

PHYSIOLOGY OF HEADACHE

Physiologically headaches are produced in four principal ways, or, clinically by a combination of them: (1) distention and dilatation of arteries inside or outside the skull (most often by branches of the internal and external carotid arteries); (2) traction on the vessels within the skull; (3) edema and spasm of muscles of the scalp and neck, and (4) direct irritation of pain-carrying nerves or structures by inflammation or pressure.

THE SEVERITY OF VARIOUS TYPES OF HEADACHE

It is often valuable, when a patient presents himself with headache, to know the usual severity of each type. The following headaches are usually very severe:

1. Tic douloureux
2. Vascular headaches: migraine and histamine cephalalgia
3. Inflammations within the cranium: meningitis, encephalitis, brain abscess

The following are usually moderately severe:

4. Drainage headache
5. Neuralgias of the scalp, including toothache, earache and sinusitis
6. Traumatic headache—may be severe or mild

These headaches are usually mild:

7. Tumors of the brain
8. Eye strain
9. Toxic headache including hypertension
10. Tension
11. Psychic "headache"—an abnormal sensation

We believe that a relatively simple classification of headache can be made based on physiologic mode of production which will be of practical value to the physician (table 2).

VASCULAR HEADACHES

Vascular headaches are those primarily resulting from a dilatation of blood vessels. They include migraine, histamine cephalalgia and tension headaches. They are usually made worse by vasodilators such as nicotinic acid and relieved by vasoconstrictors like ergotamine tartrate, "DHE 45" (dihydroergotamine) and ascorbic

acid. Epinephrine and ephedrine contract the extracranial but not the intracranial vessels.

Migraine.—Migraine headaches are characterized by three general distinct stages, the preheadache, the throbbing headache and the steady pain. They are ushered in by the preheadache or aura which consists of disturbances of the special senses mediated by cranial nerves and showing no pain. These are vision, such as scintillating scotomas, hemianopsia or diplopia; hearing with tinnitus, or deafness, or vertigo; paroxysmal tachycardia; taste and smell, and various cutaneous paresthesias or evidence of peripheral vasomotor instability. Preheadache is cortical in origin, due to vasoconstriction of the internal carotid artery and its branches, resulting in localized areas of anoxia or ischemia in the cortex and not in nuclei, with symptoms mediated through the corresponding cranial nerves.

The mechanism of the vasoconstriction of the internal carotid artery is due to the absolute antagonism of histamine and epinephrine, involving presumably an

TABLE 1.—*Pain-Sensitive Structures in the Head (After Wolff [1])*

1. Tissues covering the cranium, especially arteries
2. Intracranial structures
(*a*) Parts of dura mater
(*b*) Dural arteries
(*c*) Venous sinuses
(*d*) Cerebral arteries at base
3. Cranial nerves V, IX and X
4. Cervical nerves I, II and III

TABLE 2.—*Physiologic Classification of Headache*

I. Vascular headache
(*a*) Migraine
(*b*) Histamine cephalalgia
(*c*) Tension headache
II. Psychic "headache"—a sensation
III. Traction headache—intracranial
(*a*) Drainage
(*b*) Tumors of brain or meninges
(*c*) Late post-traumatic adhesions or hematomas
IV. Cranial or cervical nerve irritation—extracranial
(*a*) Nose and sinuses
(*b*) Vision and eye muscles
(*c*) Ears, teeth, mouth
(*d*) Scalp, face and neck
V. Traction and nerve irritation; intracranial and extracranial
(*a*) Early post-traumatic
(*b*) Inflammation of brain and meninges
VI. Mixed—toxic

increased production and release of epinephrine due to histamine stimulation, this being brief, due either to exhaustion of the supply of epinephrine or preponderance of the vasodilating action of histamine over the effect of epinephrine. In this connection it should be pointed out that the early and brief effect of epinephrine is vasodilatory because of release of histamine, before the full vasoconstricting action of epinephrine is effective. There are certain points that must be emphasized at this time with respect to the singular and individualistic reactions of various branches of both the internal and the external carotid arteries. For example, the "flush area" involving the face, neck and shoulders and upper anterior part of the chest resulting from action of histamine is identical with that produced by nicotinic acid. These are all involvements of the external carotid artery, and the internal carotid artery is not involved in this process of vasodilatation except in histamine cephalalgia. Since in both migraine and histamine cephalalgia the vascular aspect is usually unilateral in any one attack and in the latter is almost universally confined to a particular side and remains as such, one must raise the baffling question why these blood vessels, as a result of a generalized systemic condition, respond in an asymmetric and unilateral pattern.

A frequent short-sighted attitude toward migraine, particularly among those with psychiatric leanings, has led to the fallacious idea that migraine is psychogenic in origin. These persons have failed to distinguish between the importance of a trigger mechanism, state of mind conditioned by domestic or financial problems, fear of disease, which may greatly influence the frequency, duration and severity in attacks of migraine, and the fact that migraine is a physiologic and pharmacologic disturbance closely related to allergies and histamine tolerance. This disturbance is undoubtedly conditioned, as has been stated, by mood, but there nevertheless exist a large number of persons who under no conceivable circumstances, however trying, would have headache, migraine or otherwise. We are dealing with two distinct clinical entities, the subject with migraine whose attacks may be favorably modified by reassurance or improvement of personal status, and the person who simply does not have migraine.

The second stage or the migraine headache itself begins as a throbbing unilateral localized headache, later becoming more generalized; it is steady in character and more resembling pain than headache. The headaches themselves usually are accompanied by nausea and vomiting, and characteristically there is freedom from any symptoms between attacks. There is usually some relationship to the menstrual cycle with freedom from headache during the last half of pregnancy. This is the stage of vasodilatation.

Since this is a disturbance of the external carotid artery, there are usually no changes in the retinal arteries during attacks.

The third stage of migraine follows the pulsating one in several hours. At this time the headache is steady and grinding. It is usually more generalized and often bilateral. The scalp over the affected area is tense and tender. It is due to stretching of the scalp with edema of the walls of its vessels and pressure on pain-carrying nerves.

Vasodilators are said to be of value in stage one. Ergotamine tartrate and dihydroergotamine will relieve from 70 to 90 per cent of headaches if given early in stage 2. There is no treatment after edema of the vessel walls has occurred in stage 3. It is our experience that 85 per cent of the patients with true migraine will be cured or greatly benefited by repeated intravenous injections of histamine.[3]

Histamine Headache, Excluding Migraine.—As recognized and described by Horton,[4] histamine cephalalgia, resembling in some cases headache produced by subcutaneous or intravenous injections of histamine (not to be confused with similarly induced migraine), was for some years not met with by physicians, but recently has been identified with increasing frequency. In his description, Horton emphasized the paroxysmal nature of attacks, occurring several times in twenty-four hours, the unilateral pain, lacrimation, nasal engorgement and flushing of the involved side. There has been little emphasis, however, on the cyclic character of this syndrome. Universally, patients seen by us with this condition state that for periods of two to twelve weeks they experience frequent daily attacks, occasionally

3. Butler, S., and Thomas, W. A.: Intravenous Histamine in the Treatment of Migraine, J. A. M. A. **128**: 173 (May 19) 1945. Thomas, W. A., and Butler, S.: Intravenous Histamine in the Treatment of Migraine, Bull. New York Acad. Med. **22**: 125 (March) 1946; Arch. Neurol. & Psychiat. **56**: 356 (Sept.) 1946; Am. J. Med. **1**: 39 (July) 1946.

4. Horton, B. T.: The Use of Histamine in Treatment of Specific Types of Headache, J. A. M. A. **116**: 377 (Feb. 1) 1941.

sixteen in twenty-four hours. They are awakened as often as five or six times during the night by severe pain, which is relieved after arising; they return to sleep only to be awakened by subsequent attacks. Following such a cycle, there is complete freedom from attacks for short or long intervals, and then the cycle of headache or pain recurs. It is sometimes found that the period of attacks becomes longer and the attacks more severe, while the intervals of freedom become shorter. The reason for this alteration of phases is unknown; in some cases it does not occur, since occasionally patients report one or more such episodes, after which there is freedom from recurrences.

Treatment as advocated by Horton, with increasing doses of histamine, one or more daily, is usually not successful in other hands, and superior results have been obtained by us with the long-continued drip method of administration of histamine, as used in the treatment of migraine, in which 2.75 mg. of histamine acid phosphate in 500 cc. of isotonic solution of sodium chloride is administered intravenously on six successive days at a rate as fast as can be tolerated, this rate governed by appearance of headache, characteristic histamine flush or falling blood pressure, all of which can be relieved by injection into the rubber tubing of 1 Gm. of ascorbic acid or by reducing the rate of flow of the solution.[5]

We believe that such a syndrome exists, and are encountering it with increasing frequency. However, many neurologists doubt its existence, believing that a phenomenon that has such a constant position, particularly because of its repetitive character, must be based on some organic factor, such as aneurysm of cerebral vessels, and that therapeutic results are due to factors which favorably influence the size or progress of such lesions. Their arguments are well taken, and the basis of such a condition is not firmly established.

Nevertheless, certain definite facts point to the validity of the theory that vasodilatation of the cerebral vessels, particularly branches of the internal carotid artery, is responsible for this condition. It can be produced by the injection of histamine and is abolished at the height of the attack by raising the intrathecal pressure to 600 mm. of water. Wolff has demonstrated photographically an increase of amplitude of intracranial arterial pulsations in headache produced by intravenous injections of histamine, such headache being abolished by increasing intracranial pressure, extramural support thus being given to cerebral arteries. Branches of the internal carotid artery itself and the vertebral and basilar arteries are chiefly involved and determine the quality and intensity of the headache. Afferent pathways responsible for headache produced by injection of histamine or its excessive production in the body are primarily the fifth cranial nerve, and of less importance the ninth and tenth and the upper cervical nerves.

THE ROLE OF HISTAMINE

Therapy of histaminic cephalalgia or migraine falls into three categories:

The first method of therapy consists in prevention of excessive histamine production (1) by determining and eliminating sources of allergy. This is notoriously difficult, primarily because tests, including intradermal and scratch tests, as well as elimination programs, rarely produce results consistent with the patient's experience. It must be kept in mind that as far as orally ingested foods are concerned there is a refractory period, such that when a person has partaken of food, such as chocolate, and there has been a reaction designated as allergic or anaphylactic, such as migraine, urticaria or asthma, he may then eat such food for a period of from four to nine or ten days without a similar reaction. It is thus difficult to specify the particular item of food responsible for such a reaction. This principle applies equally to migraine and histaminic cephalalgia.

The second method of therapy consists in desensitizing the patient to one or more specific substances to which he has been demonstrated to be allergic.

The third method consists in increasing tolerance to histamine.

The current theory is that by any allergic or anaphylactic reaction, histamine is produced in excessive amounts. This reaction may occur in an area remote from its action; for example, in the intestinal tract as a result of ingestion of chocolate. The individual reaction to chocolate is similar to that of the person who cannot metabolize purine substances and has gout, or one who has no capacity to handle fats and appears with high blood cholesterol.

This is precisely the situation with respect to certain proteins. In some persons, there is an inability completely to "degregate" specific or many proteins, this failure resulting in the presence of aggregates of antigenic magnitude, resulting in formation of antibodies and subsequent anaphylactic release of histamine. Chocolate and its derivatives comprise a group of proteins with which the metabolic forces of the body have extreme difficulty in functioning; hence the almost universal role of chocolate in such reactions.

Since these failures of metabolism result in the production of histamine, it is pertinent to ask the result. In the body there are certain tissue aggregates designated as shock organs, characterized by their vascularity —notably skin, bronchial musculature, mucous membranes and the carotid arteries, external and internal, with their branches. Histamine, produced by an allergic reaction remote from its source of action, produces in these shock organs reactions characteristic of their responses when stimulated; i. e., urticaria, asthma and migraine. Hence the effort to identify and eliminate all antigenic factors, dietary, contact and inhalation, to prevent histamine production.

Antihistaminic Therapy: Since histamine (decarboxylate of histidine) is nonantigenic, the term desensitization is ambiguous and misleading. The substance can be absorbed repeatedly by all routes (intravenous, intradermal or oral), without subsequent production of antibodies or anaphylactic reaction. It is apparent that those persons suffering from allergic reactions have a lowered tolerance of histamine and that active therapy —much more effective by long-continued exposure by the intravenous method, for periods of from three to eight or more hours, than by individual subcutaneous dosages—is effective in restoring this lowered tolerance to normal, either by increased physiologic tolerance, as in the case of drugs, alcohol and tobacco, or by stimulation of production of histaminase.

Since such an attack is in many instances not feasible, the use of antihistaminic preparations has been advocated. In the patients treated in this manner, results are most gratifying. Patients who have been awakened two to six times every night can take before retiring two or three of the antihistaminic preparations of proved value and have no attacks. Diphenhydramine hydrochloride ("benadryl hydrochloride") is of little value; tripelennamine hydrochloride ("pyribenzamine hydro-

5. Butler, S., and Thomas, W. A.: Clinical Observations with Intravenous Histamine, to be published.

chloride") is exceedingly effective, and a number of preparations not commercially available (Searle 887 [diethylaminoethyl-9, 10 dihydroanthracene-9-carboxylate] in particular) have not only relieved the immediate symptoms, but have been successful in carrying a number of patients through the cycle of frequent and severe attacks until they could emerge into the predictable freedom from attacks.

Tension Headaches.—Tension headaches, although definitely due to vasodilatation, have a less clear clinical picture than migraine or histamine cephalalgia. Nervous tension produces early vasoconstriction, but this, as stated before, does not cause headache. Long-continued spasm gives way and dilatation then follows.

These headaches are usually bilateral, throbbing or pulsating, occipital, and described by the patient as a pressure in the back of the neck. They show no aura, no visual disturbances and usually no nausea or vomiting. They may come on daily for a few hours or last many days. They respond briefly to vasoconstrictors and are benefited by intravenous administration of histamine, since histamine is the physiologic cause of vasodilatation, but basically they are psychosomatic in origin and respond only to psychiatric therapy. They must be carefully differentiated from migraine on the one hand and psychic headaches on the other.

PSYCHIC HEADACHES

Psychic headaches are not really headaches. They are a strange and usually terrifying feeling and are without organic cause or disturbance of vascular or other function. They do not hurt but are horrible to the patient, who often says "they will make me lose my mind." They are due purely to fear of brain tumor, stroke or insanity and to the focusing of attention on the head. Attention causes fear; fear causes headache.

TRACTION OR INTRACRANIAL HEADACHE

Traction on the meninges is one of Wolff's classic causes of headache. The commonest is that occurring after spinal puncture with removal of spinal fluid. Contrary to earlier opinions, the headache is due to traction or intracranial adhesions rather than any type of medullary herniation into the foramen magnum. Increasing the pressure of the spinal fluid or lowering the patient's head will relieve traction and stop the headache.

Tumors of the Brain.—Tumors of the brain do not cause headache if intracranial pressure is increased unless there is pressure on a pain-sensitive tissue such as the cranial arteries, the dural arteries, the venous sinuses or parts of the dura mater by the tumor or hematomas around it. In most intracranial tumors the headache is caused by traction on meningeal vessels and stops when pressure is increased. In general, headache due to tumor is of low grade, deep, aching and steady. It is usually increased by coughing or straining. Nausea is rare and vomiting occurs only with medullary involvement. Its location varies with its supratentorial or subtentorial position and the sensory nerve through which it comes to consciousness.

EXTRACRANIAL HEADACHES

The commonest cause for organic headache is irritation or inflammation of the sensory, cranial or upper cervical nerves outside the skull. Neuralgias and myosites elsewhere we recognize daily; these are just as common as peripheral rheumatism because of the tendency for focal infection in the head to involve pain-sensitive structures by direct contact. We have but to remember the sensory distribution of the fifth, ninth and tenth cranial and upper cervical nerves in order to see how these pains come to consciousness. They are head pains rather than headaches in their character. They vary in severity from the mild myositis of the stiff neck to the severe pain of ear ache, dying dental nerves or tic douloureux. They may arise from inflammations in the nose and accessory sinuses; from inflammatory diseases in the eyes or from the strain of poor vision or imbalance of ocular muscles.

Otitis media or the pressure of glands on branches of the trigeminal nerve will cause severe pain. We all know too well the pain of the dentist's drill or that associated with pulpitis. Tonsillitis, Vincent's angina, and other conditions of the mouth and throat are felt as pain along the ninth and tenth nerves.

The least well recognized extracranial headache is that involving the scalp and face. Its usual cause is myositis of neck or scalp muscles resulting from focal infection, chilling or spinal arthritis. In all these cases the scalp or neck is tender to touch, and it is usually tightly spastic.

These headaches are all extracranial and organic but may cause sleepless painful hours until recognized and treated by local or general therapy.

Post-Traumatic Headache.—True, so-called headaches following injury to the areas of the skull and scalp are, if of long duration, primarily due to neuritis, in which nerves of the scalp are involved by scar tissue after laceration or contusion, and are actually pain rather than headache. When confronted with this difference, intelligent patients readily distinguish between the two, and recognize that their discomfort is unlike headache experienced from other causes. The pain is superficial; there is tenderness, especialy in focal or trigger areas, with accompanying numbness, hyperesthesia or hypoesthesia. In the acute type, prognosis is usually good, with total and permanent recovery, whereas the chronic type becomes disabling and requires definite, localized therapy, including injections, either temporary or long lasting, or avulsion of the nerve. Usually the site of pain is closely related to the injury and to the nerve distribution involved.

The post-traumatic syndrome is not so readily identified, as it may be either organic or functional, may be general or localized and may be apart from the site of injury in either case. Ordinarily, in the functional category there is an element of compensation which is frequently difficult to clarify, requiring psychiatric study; the period of unconsciousness following injury is rare, symptoms are not relieved by medication, even in quantities adequate to alleviate severe pain of organic sources; pain is constant and the patient complains of more headache or pain than appears compatible with his behavior. Obviously many of these are borderline psychiatric-organic syndromes, and prolonged, sympathetic study is required to determine their exact nature.

In the case of the organic post-traumatic syndrome unconsciousness usually accompanies the injury, though in many instances there are minimal neurologic symptoms, including disturbances of reflexes and evidence of nerve damage. In this category fall meningocortical adhesions and blood clots. There is frequently loss of tone in blood vessels, resulting in symptoms commonly encountered in vasodilatation, duplicating numerous other familiar organic and functional states with respect to postural changes. Serial electroencephalograms for several months immediately after injury are of great value in localizing and identifying lesions, while in per-

sistent headaches, especially those lasting more than three months, pneumoencephalography is advised, not merely to demonstrate adhesive processes, but to take therapeutic advantage of this procedure, since some cases are benefited by it. Beginning post-traumatic atrophy and cortical scarring may be demonstrated, thus eliminating further consideration of the functional state.

Post-traumatic atrophy of the brain is a cause of very severe headache and a condition diagnosed with difficulty in life. The reason for its occurrence is not known, and insufficient knowledge of its course and response to therapy leaves it a condition for further investigation.

The headaches of subdural (chronic) hematomas are those of increased intracranial pressure. Although the injury may have been slight, the neurologic signs and the history are those of progression, advancing from mild disorders to crises—either mental or physical, including loss of consciousness, changes in state of consciousness, hemiplegia or paraplegia. Onset occurs after, not at the time of, injury and is of the crescendo type, though symptoms may be totally absent at times, even for days. Such headaches resemble the brain tumor type, from which they may be difficult to distinguish.

In all of these headaches the psychogenic factor may be of primary or minimal importance. In its presence, much more than with organic disease, it stops work and interferes with life, to such a degree that, when it is recognized, patients should be allowed to follow any course or procedure which they think will be of help. Any program, arbitrary or empiric, which tends to deny the disease, blocks understanding and recognition and adds to frustration.

Finally it must be realized that acute trauma is not the cause of headache such as we are concerned with. Suppuration, laceration, periostitis, trephine and other injuries to the scalp and skull differ in no respect from similar lesions elsewhere, respond in like manner to appropriate therapy, and per se do not result in prolonged headache or pain.

HEADACHES DUE TO BOTH TRACTION AND NERVE IRRITATION

Headaches due to both traction and nerve irritation are logically intracranial and extracranial. These involve early post-traumatic headaches as have been described, with injury to the nerves of the scalp on the one hand and intracranial pain-sensitive structures on the other.

Inflammation of the brain and meninges causes headache which is usually severe. The tissues covering the cranium, especially the dural arteries, are pain sensitive and in such inflammations are greatly stretched by swelling of meninges or brain itself. This causes intracranial headache. The extracranial part of these headaches is evidenced by the reflex stiffness of the neck, often even involving the scalp muscles, so characteristically seen.

TOXIC HEADACHE

Toxic headaches occur classically in uremia, metallic poisonings and eclampsia. They may also accompany jaundice and severe infections; their true cause is probably variable, a combination of vascular dilatation and cloudy swelling of the meninges, and they are generalized over the head and usually associated with nausea and vomiting. Since they take a relatively minor role in the obvious and serious condition, their recognition is usually easy.

SUMMARY

Headache is a symptom common to many clinical conditions but varying widely in character, mechanism and cause. Its diagnosis and proper treatment are of primary concern to the patient. Only by the recognition of pain-sensitive structures and the mechanism by which headache comes to consciousness can its diagnosis be made. A simple classification of headaches is made considering the mechanism of their production: (*a*) vascular headaches, including migraine, histamine cephalalgia and tension headache; (*b*) psychic headache; (*c*) intracranial or traction headache; (*d*) extracranial headache due to irritation of afferent cranial or cervical nerves; (*e*) combined intracranial and extracranial headache, and (*f*) toxic or mixed headache. A discussion of the characteristics of each type clarifies these relationships.

30 North Michigan Avenue—122 South Michigan Avenue.

ABSTRACT OF DISCUSSION

DR. PAUL A. DAVIS, Akron, Ohio: It is a rare person who comes to your office and says, "I have never had a headache in my life." In some of these cases of persistent migraine which they have had over a period of years, it would not do any harm to have a stereoroentgenogram of their skull. You may discover that something which you have been treating as migraine is not migraine. I have had 3 cases of multiple myeloma of the skull which had been treated for twenty years as migraine headaches.

NEW TEST FOR HYPERTENSION DUE TO CIRCULATING EPINEPHRINE

MARCEL GOLDENBERG, M.D.
New York
C. HARRISON SNYDER, M.D.
Salt Lake City
and
HENRY ARANOW Jr., M.D.
New York

The only clinically significant hypertension due to circulating epinephrine of which we know is associated with pheochromocytoma. This is a tumor consisting of chromaffin tissue, producing epinephrine, and arising either in the adrenal medulla or in one of the many, widespread areas where chromaffin tissue is found during early life.

At first sight, we may seem to be dealing with a medical curiosity, for only 134 cases of this kind have been described since 1922, when Labbe [1] first reported a case of paroxysmal hypertension due to a tumor of the adrenal medulla, but such cases are not so rare as the literature would indicate. In Smithwick's [2] series of 1,000 hypertensive patients subjected to lumbodorsal sympathectomy, in which both adrenal glands were exposed in order to remove possible adrenal tumors, the incidence of pheochromocytoma was 0.5 per cent. This is probably less than the real incidence, since in a considerable fraction of the cases the pheochromocytoma is extra-adrenal.

The drug used in the early part of this work was supplied by E. R. Squibb & Sons.

From the Departments of Medicine and Pediatrics, Columbia University College of Physicians and Surgeons, and the Presbyterian Hospital, New York.

1. Labbe, M.; Tinel, J., and Doumer: Crises solaires et hypertension paroxystique en rapport avec un tumeur surrenale, Bull. et mém. Soc. méd. d. hôp. de Paris **46**: 982, 1922.

2. Smithwick, R. H.: Personal communication to the authors (1946).

Why is the diagnosis of pheochromocytoma so often missed? It is customary to say that the diagnosis can be made from: (1) the typical syndrome, the so-called adrenal sympathetic syndrome; (2) demonstration of the tumor by roentgen examination—pyelogram, perirenal insufflation [3]; (3) demonstration of a specific pressor substance in the patient's blood.

The typical syndrome of paroxysmal hypertension with signs of vasoconstriction, pallor, headache, nausea, vomiting, tachycardia and sense of constriction in the epigastrium may be present, but permanent hypertension with or without paroxysmal exacerbation is common in pheochromocytoma (table). In Green's [4] recent review of 51 cases 14 only showed intermittent hypertension, while *37* had chronic hypertension. It

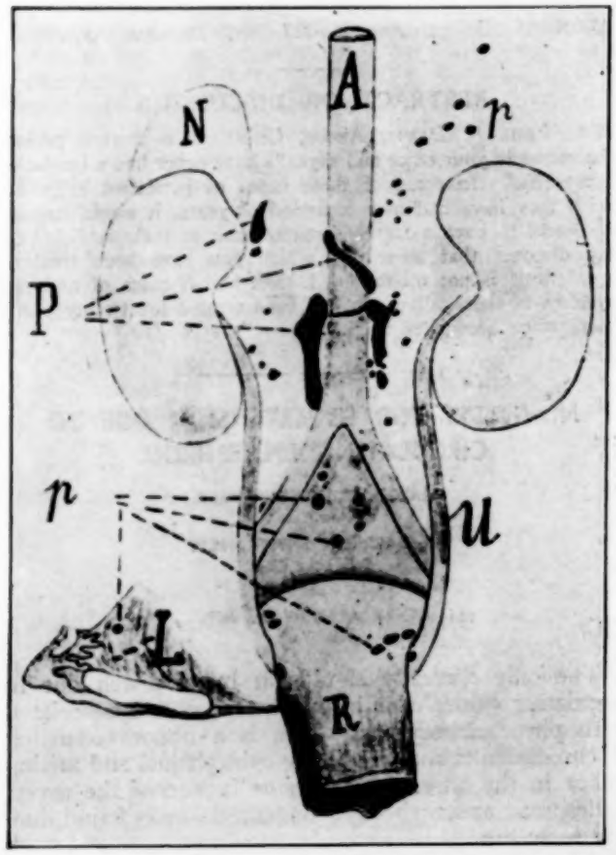

Fig. 1.—Chromaffin tissue in a girl aged 45 days. The meaning of the letters is as follows: A, aorta; N, adrenal gland; U, ureter; R, rectum; L, ligamentum latum; P, larger paraganglia, and p, smaller paraganglia. The black areas represent chromaffin tissue (paraganglia). The left adrenal gland has been removed in order to show paraganglia around the adrenal gland. (From Kohn.[7])

is not only the presence of permanent hypertension, but the complete lack of fluctuations in blood pressure in certain cases, which makes them indistinguishable from essential or malignant hypertension.[5] As a result of his experience with such a case, Thorn [6] suggested that each patient with severe hypertension be investigated for the presence of a pheochromocytoma, since removal of such a tumor gives one the rare opportunity of truly curing hypertension.

In addition to the fact that the "index of suspicion" for pheochromocytoma is unduly low, preoperative demonstration of its presence has been difficult. Ordinary roentgenographic technics are frequently inadequate for this purpose. Although perirenal air insufflation is of great value, its hazards and technical difficulties are well known and it, of course, fails when the tumor is not in the adrenal area. The accompanying figure taken from Alfred Kohn's [7] first description (fig. 1) shows how widespread are the possible sites of origin of tumors of chromaffin tissue. The literature suggests that only about 15 per cent of the tumors are extra-adrenal, but our experience and that of Stout [8] lead us to believe that a much higher percentage are so located.

The demonstration of epinephrine in the blood of these patients, with the use of pharmacologic test objects, presents many technical problems [9] and has been claimed only once.[10] Even this claim is open to criticism.

Pheochromocytoma

Symptoms:
1. Sudden death in symptom-free subjects on minor trauma; e. g., simple surgical procedures
2. Adrenal sympathetic syndrome
   (*a*) Normal blood pressure at intervals: paroxysmal hypertension
   (*b*) Continuing hypertension with paroxysmal rises
3. Simulating essential or malignant hypertension (Palmer and Castleman [5a] 1938; Binger and Craig [5b] 1938; Philips [5c] 1940; Kirschbaum and Balkin [5d] 1942; McCullagh and Engel [5e] 1942; Thorn, Hindle and Sandmeyer [6] 1944)

Site:
1. Adrenal medulla
2. Extra-adrenal: retroperitoneal tissue, ganglions with aorta and vena cava, Zuckerkandl's organ, thoracic sympathetic chain

Pressor substance in the blood
Demonstrated on pharmacologic test objects: denervated rabbit's ear, 1 case (Beer, King and Prinzmetal [10] 1937).

The approach chosen by us was simpler: If hypertension is due to circulating epinephrine, it will be abolished or significantly decreased by the intravenous administration of adrenolytic compounds.[11] If the hypertension is due to any other cause, it will persist.

This basic idea proved to be correct. Since adrenolytic drugs are always labeled and regarded as "sympatholytics," indicating that they block sympathetic action also, the objection could be raised that the sympatholytic action might well influence essential hypertension. In this connection, it is worthy of mention that our original objective was to produce a "pharmacologic sympathectomy" in essential hypertension. Our failure to achieve this goal was due to the fact that, in tolerable doses, the benzodioxanes, our chosen adrenolytic agents, are adrenolytic only; this made the test possible.

Examination of the structural formulas of the benzodioxanes clarifies our understanding of their

3. Cahill, G. F.: Air Injections to Demonstrate the Adrenals by X-Ray, J. Urol. **34**: 238, 1935; The Hormonal Tumors of the Adrenal Gland, Pennsylvania M. J. **47**: 655, 1944.

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6. Thorn, G. W.; Hindle, J. A., and Sandmeyer, J. A.: Pheochromocytoma of the Adrenal Associated with Persistent Hypertension: Case Report, Ann. Int. Med. **21**: 122, 1944.

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8. Stout, A. P.: Personal communication to the authors (1946).

9. Kreuzfeldt: Attempts to Demonstrate the Presence of Pressor Substances in the Blood of Patients in the Renal Hypertension, Acta med. Scandinav. **125**: 171, 1946.

10. Beer, E.; King, F. H., and Prinzmetal, M.: Pheochromocytoma with Demonstration of Pressor (Adrenaline) Substance in the Blood Preoperatively During Hypertensive Crises, Ann. Surg. **106**: 85, 1937.

11. "Adrenolytic" means inhibiting the response to epinephrine, a term coined by Bacq, Z. M., and Fredericq, H.: Action adrenolytique d'un derive du dioxane (933F), Compt. rend. Soc. de biol. **117**: 806, 1934.

pharmacologic action (fig. 2). The simplest aromatic sympathomimetic amine is phenylethylamine. The introduction of an oxygen atom between the side chain and the ring yields a compound with adrenolytic properties. There is experimental evidence to support the natural assumption that this action is partially due to competition for receptors by structurally similar compounds. The sympathiomimetic action, however, is not wholly lost; in unanesthetized animals, the entire group of benzodioxanes presents this melee of sympathomimetic and adrenolytic actions. Anesthesia abolishes the sympathomimetic action.

Of the large number of benzodioxanes first investigated by Fourneau and Bovet,[12] two piperidyl derivatives, 1164F ([2, 4-dimethyl piperidyl] methylbenzodioxane) and 933F (piperidylmethyl benzodioxane), were selected for our study.

Experiments on animals with 933F have revealed that in doses ranging from 0.25 to 2 mg. per kilogram of body weight the compound has a purely adrenolytic action on blood pressure. By this is meant that, with increasing dosage, it first decreases, then abolishes and finally reverses action of epinephrine on the blood pressure.[13] These small doses do not affect the vasomotor reflexes originating in the aorta and the carotid sinuses. Doses ranging from 5 to 10 mg. per kilogram depress and finally abolish these vasomotor reflexes, and hypertension due to section of the buffer nerves is temporarily depressed or abolished by doses of this magnitude.[14] Only when more than 10 mg. per kilogram is administered does a peripheral sympatholytic action appear, and this amount approaches the LD_0 limit (the maximum tolerated dose. Only one fortieth to one eightieth of the sympatholytic dose is required to produce a significant depression of hypertension due to epinephrine. This may be due to the fact that hypertension caused by epinephrine is more susceptible to benzodioxanes than hypertension caused by "noradrenaline," which is believed to be the sympathetic transmitter.[15] In nonanesthetized animals, signs of stimulation of the central nervous system,[16] tachycardia and hypertension are always observed. The benzodioxanes do not abolish the action of epinephrine on heart rate; on the contrary, they increase the tachycardia due to epinephrine in unanesthetized animals.

The early experiments were performed with 1164F because it had been reported to show less stimulation of the central nervous system than 933F. As the work progressed it became apparent that the side actions of the two drugs on the central nervous system were about equal for doses which had equal adrenolytic effects. In the later work 933F alone was used.

In the tests, the dosage used ranged from 0.25 mg. to 0.43 mg. per kilogram of 933F, and three times as much 1164F. These amounts have a purely adrenolytic action, without any sympatholytic effects. The dosage finally selected approximated 0.25 mg. per kilogram for adults of average weight, which is less than one hundredth of the LD_0 (the maximum tolerated dose).

Bovet and Simon [13e] have shown that with constant amounts of epinephrine the degree of fall in blood pressure produced by a given benzodioxane compound increases with the dose of the latter. On the other hand, with a constant dosage of a given benzodioxane, the drop in blood pressure is greater with greater amounts of epinephrine.

METHOD OF STUDY

A. Selection of Subjects.—Seventy tests were performed on 58 subjects comprising the following groups: Group 1, 4 patients aged 11 to 42 with pheochromocytoma; group 2, 28 patients with hypertensive disease, aged 3 to 53. Five of these were children. There were 24 patients with essential hypertension, 1 patient

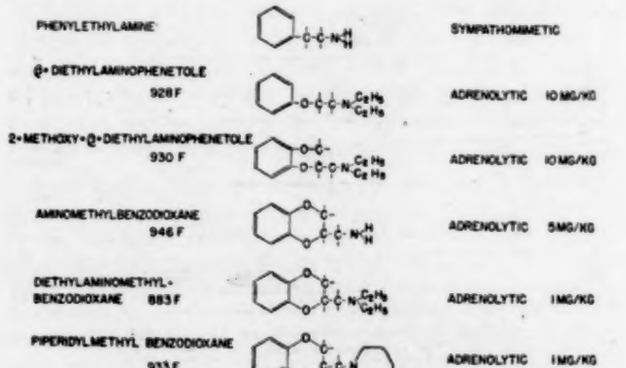

Fig. 2.—Structural relationship of sympathomimetic and adrenolytic compounds.

with Cushing's syndrome and 3 children with renal hypertension. In the adults, the preinjection blood pressures ranged from 258 to 160 mm. of mercury systolic and 160 to 84 diastolic. In the children these ranges were 228 to 142 and 154 to 84. Group 3, 14 normal persons ranging in age from 9 to 64 years. Group 4, hypertension of short duration was produced in 15 normal subjects aged 9 to 30 by the intravenous infusion of from 8 to 20 micrograms of epinephrine per minute. Systolic pressures ranging from 178 to 142 mm. of mercury were produced in adults, and relatively similar values in children. Epinephrine did not increase the diastolic values in either group.

B. Technic.—The patient was supine with a slow intravenous drip of isotonic solution of sodium chloride running into one arm through a 3 way stopcock; the sphygmomanometer cuff was attached to the other arm. After the blood pressure and pulse rate had stabilized, for which twenty to thirty minutes were allowed, the drug was given intravenously as a 1 or 2 per cent solution by attaching the syringe to the 3 way stopcock. This made it possible to eliminate the potentially disturbing effect of venipuncture at the time of introduction of the drug. The injection times ranged from thirty seconds to four minutes, and two minutes was finally chosen as the standard.

12. Fourneau, E., and Bovet, D.: Recherches sur l'action sympathicolytique d'un nouveau derive du dioxane, Arch. internat. de pharmacodyn et de therap. **46**: 178, (Oct. 15) 1933.

13. (*a*) Fourneau and Bovet.[12] (*b*) de Vleeschhouwer, G.: Au sujet de l'action du diéthylaminométhyl-3-benzodioxane (F 883) et du pipéridométhyl-3-benzodioxane (F 933) sur le système circulatoire, Arch. internat. de pharmacodyn et de thérap. **50**: 251, 1935. (*c*) Bovet, D., and Simon, A.: Recherches sur l'activite sympatholytique de derives de l'aminomethylbenzodioxane, Arch. internat. de pharmacodyn et de thérap. **55**: 15, 1937.

14. de Vleeschhouwer,[13b] Heymans, C., and Bouckaert, J. J.: Au sujet des influences du Piperidomethyl-3-benzodioxane (933F) sur le systeme circulatoire, Compt. rend. Soc. de biol. **120**: 79, 1935. Jourdan, F., and Galy, P.: Piperidomethyl-3-benzodioxane et hypertension arterielle experimentale par section de nerfs frenateurs, ibid. **131**: 1057, 1939. Bing, R. J., and Thomas, C. B.: The Effect of Two Dioxane Derivatives, 883F and 933F, on Normal Dogs and on Animals with Neurogenic and Renal Hypertension, J. Pharmacol. & Exper. Therap. **83**: 21, 1945.

15. Melville, K. J.: The Antisympathomimetic Action of Dioxane Compounds (933 F and 883 F) with Special Reference to the Vascular Response to diHydroxyphenylethanolamine (Arterenol) and Nerve Stimulation, J. Pharmacol & Exper. Therap. **59**: 317, 1937. Stehle, R. L., and Ellsworth, H. C.: Dihydroxyphenylethanolamine (Arterenol) as a Possible Sympathetic Hormone, ibid. **59**: 114, 1937. von Euler, U. S.: Sympathin in Adrenergic Nerve Fibers, J. Physiol. **105**: 26P, 1946.

16. Handovsky, H.: Sur l'effet central du diethylaminomethyl-3-benzodioxane (F 883), Compt. rend. Soc. de biol. **118**: 1245, 1935.

In order to equalize the side effects in the various age groups, it was found best to calculate the dosage in terms of body surface, a value which can be readily obtained from nomograms of the basal metabolic rate when height and weight are known. Ten milligrams of 933F and 30 mg. of 1164F were given per square meter of body surface.

Blood pressure readings were taken at intervals of two to three minutes during the preinjection period, at one and at one-half minute before the injection of the benzodioxane. For the first five minutes thereafter, readings were made at one-half minute intervals, and then at one minute intervals until the blood pressure returned to preinjection levels. This usually occurred in less than fifteen minutes.

No sedation should be used prior to the test, since anesthetized animals show a drop in blood pressure when benzodioxane is administered even in the absence of epinephrine; this is especially noticeable when "amytal" or chloralose is used.

Experience demonstrated that more accurate interpretations of the tests were possible when the duration as well as the magnitude of the changes in blood pressure was considered. This is simply done by plotting the blood pressure values against time on squared paper. The preinjection pressures being used as reference lines, areas between them and the blood pressure curves after injection are estimated either by counting squares or using a planimeter (fig. 6). The areas above the line are called positive; those below, negative. The final value for the

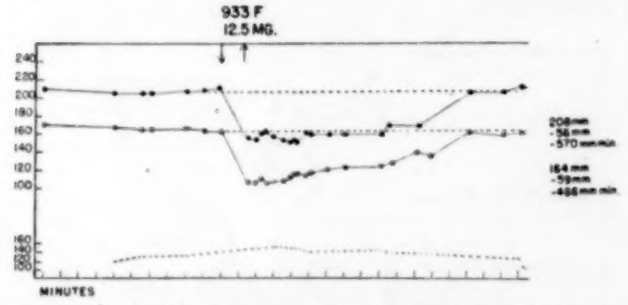

Fig. 3.—Changes in blood pressure in an 11 year old girl with pheochromocytoma after the injection of 933F.

change produced in either systolic or diastolic blood pressure by the benzodioxane is then expressed as the algebraic sum of these areas in millimeter minutes.[17]

C. Results.—The responses to benzodioxanes of 4 patients with pheochromocytoma, of representative patients with hypertensive disease and of typical normal subjects are detailed in the following. An estimation of the sensitivity of the test and of the quantity of circulating epinephrine present in patients with pheochromocytoma was made possible by epinephrine infusion tests.

Case 1.—D. B., an 11 year old girl, was seen at the Grasslands Hospital complaining of nervous attacks and bouts of perspiration over a period of three years. Initially the attacks were related to emotional factors, but later a constant elevation of the blood pressure to about 230 mm. of mercury systolic and 145 mm. diastolic was noted. Additional findings included a basal metabolic rate of plus 53 per cent, cardiac enlargement, gallop rhythm, pulsus alternans and albuminuria.

Two benzodioxane tests were performed with positive and essentially similar results. The first was done with 933F and is shown in figure 3; the second test employed 1164F. The preinjection blood pressure was 208 systolic and 164 diastolic, and after injection there was a maximum fall of 66 mm. of mercury in systolic and 59 mm. of mercury in diastolic pressure. The total effect lasted thirteen to fourteen minutes, yielding a systolic area of minus 570 millimeter minutes and a diastolic area of minus 460 millimeter minutes.

Perirenal aerograms and intravenous pyelography were unrevealing, and a laparotomy was performed. Two tumor masses were found. The first was an orange-sized mass originating in the sympathetic ganglions and extending into the foramen of Winslow. The second was smaller and was located at the bifurcation of the aorta. All attempts to mobilize the larger tumor, which was intimately adherent to the vena cava, led to cardiac arrhythmias, during one of which the patient died. Pathologic diagnosis was pheochromocytoma of the right posterior sympathetic ganglions, and tumor of the organ of Zuckerkandl.

Case 2.—J. L., a 13 year old girl, was first admitted to Babies' Hospital in September 1943, because of tachycardia, loss of weight, sweating and heat intolerance. Blood pressure was 180 systolic and 120 diastolic, optic fundi were essentially normal, and the basal metabolic rate was plus 50 per cent. A tentative diagnosis of "hyperthyroidism" was made.

Eleven months later, because of progression of symptoms and the appearance of hypertensive retinopathy, intravenous pyelography and perirenal air insufflation were performed. These suggested enlargement of the left adrenal gland, and on Aug. 17, 1944, a pheochromocytoma of the left adrenal was removed by Dr. George Cahill.

Although the postoperative course was smooth, there was no amelioration but rather a progression of her disease. She was readmitted, and a benzodioxane test was performed in October. Fifteen mg. of 1164F (only half the dosage later used routinely) was administered at a time when her blood pressure was 220 systolic and 150 diastolic, and an immediate systolic drop of 66 mm. of mercury was observed, accompanied by a fall of 70 mm. of mercury in diastolic pressure. The lowering of the pressure persisted for fifteen minutes. It is probable that the fall would have exceeded 100 mm. of mercury had a full dose been used. Systolic area was minus 395 millimeter minutes and diastolic minus 295 millimeter minutes.

This test was interpreted as evidence of hypertension due to circulating epinephrine, and Dr. Cahill reoperated on October 13. Another pheochromocytoma was found, this one extra-adrenal, and removed.

After operation the patient's symptoms promptly regressed, and the blood pressure returned toward normal. Normal levels were not attained for several weeks, during which period the abnormal findings in the optic fundi also diminished.

Two weeks after operation, at a time when her blood pressure was still considerably elevated, to 160 mm. of mercury systolic and 116 mm. diastolic, the benzodioxane test was repeated. After the injection, the blood pressure did not fall, and this was properly interpreted as revealing no excess of epinephrine in the circulation. The systolic area was plus 27 millimeter minutes and the diastolic plus 25 millimeter minutes.

This case demonstrated three important features confirmed by later work: 1. An impressive drop in blood pressure followed injection of benzodioxane when large amounts of circulating epinephrine were present. 2. When removal of the tumor had abolished this excess of epinephrine, intravenous injection of these compounds no longer depressed the blood pressure. 3. Hypertension primarily caused by circulating epinephrine may outlast the presence of this pressor substance in the blood by several weeks.

Case 3.—K. G., a 42 year old woman, was admitted to the Presbyterian Hospital on Feb. 8, 1947 for evaluation of "hyperthyroidism" of one year's duration. Eleven months before, following emotional trauma, she noted the onset of palpitation, excessive perspiration and intermittent tremor. A month later, her blood pressure was found to be elevated, and in studies then performed mild albuminuria and moderate hyperglycemia were observed. The basal metabolic rate ranged from plus 19 per cent to plus 30 per cent, and iodine was given along with a high caloric diet. Although the patient noted some improvement and gained weight, she did not feel well. From September 1946 to February 1947 propylthiouracil was given as well as iodine, but headache, hyperhidrosis, easy fatigue and weakness persisted. Blood pressures ranged from 160 systolic and 100 diastolic to 220 systolic and 130 diastolic. Total blood iodine was 4.2 micrograms per hundred cubic centimeters, and urinal-

17. This represents essentially an integration of the changes in the blood pressure for the whole time of the drug action.

yses revealed constant moderate albuminuria; glucose in the urine ranged from 0 to 4 plus.

At the time of admission her blood pressure was 190 systolic and 110 diastolic. The only abnormality found on physical examination was slight retinal arteriolar tortuosity and sclerosis, with slight arteriovenous nicking. There was no palpable enlargement of the thyroid, no tremor or increase in heart size. Laboratory findings included a basal metabolic rate of plus 23 per cent, normal renal function and a fasting blood glucose of 153 mg. per hundred cubic centimeters.

A benzodioxane test was performed at a time when her blood pressure was 180 systolic and 130 diastolic. After administration of 17 mg. of 933F her blood pressure fell to 134 systolic and 80 diastolic, and preinjection levels were not reached for sixteen minutes. The systolic area was minus 345 millimeter minutes, and the diastolic minus 325 millimeter minutes. This result led to careful roentgenographic studies for pheochromocytoma. After perirenal air insufflation, Dr. Cahill removed a large (93 Gm.) pheochromocytoma from the right suprarenal area. Shortly prior to operation her blood pressure was 220 systolic and 140 diastolic. In this instance the blood pressure fell promptly to normal levels, and remained there during and after an uneventful convalescence.

In the 3 cases of pheochromocytoma which have been described, large amounts of circulating epinephrine were present. It is possible to reach this conclusion by contrasting the blood pressure changes observed in them after injection of benzodioxane with those seen

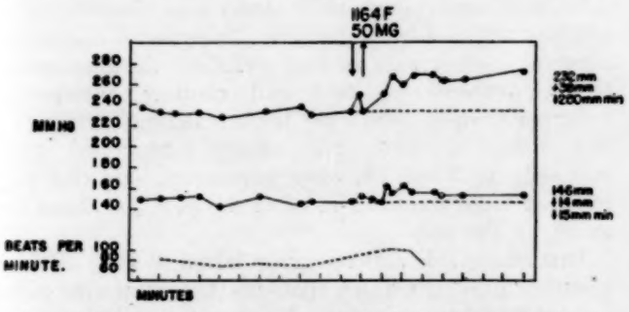

Fig. 4.—Responses to the injection of 1164F in a 32 year old woman with malignant hypertension.

in epinephrine infusion experiments. It should be recalled that, with a constant dose of a given benzodioxane the magnitude of the fall in blood pressure is proportional to the amount of epinephrine present. A fourth case of pheochromocytoma, which showed only small amounts of circulating epinephrine, is described later in this paper.

The following cases exemplify the results of the administration of benzodioxanes to patients with hypertensive disease.

CASE 4.—K. M. was a 32 year old woman with renal and eyeground changes which led to a diagnosis of "malignant hypertension." Complete roentgen studies, including aerograms, had revealed nothing to suggest a pheochromocytoma. The blood pressure just before injection was 232 mm. of mercury systolic and 146 mm. diastolic. After administration of the benzodioxane compound a 38 mm. rise in systolic and a 14 mm. rise in diastolic pressure were observed (fig. 4). The duration of the effect was such that the systolic area was plus 280 millimeter minutes and the diastolic plus 15 millimeter minutes. The response in such cases resembles the mirror image of that seen in pheochromocytoma.

CASE 5.—A. K., a woman aged 41, gave a history of hypertensive crises. Perirenal air studies were negative. The preinjection blood pressure was 220 systolic and 122 diastolic, and after the injection of 20 mg. of 933F the systolic pressure rose 52 mm. and the diastolic 28 mm. (fig. 5). The systolic area was plus 302 millimeter minutes and the diastolic area plus 120 millimeter minutes.

Many cases of essential hypertension showed a purely pressor response following administration of benzodioxane. In some instances a drop in blood pressure of short duration, thirty seconds to two minutes, and of small degree, 5 to 26 mm., preceded the pressor response when an injection time of thirty

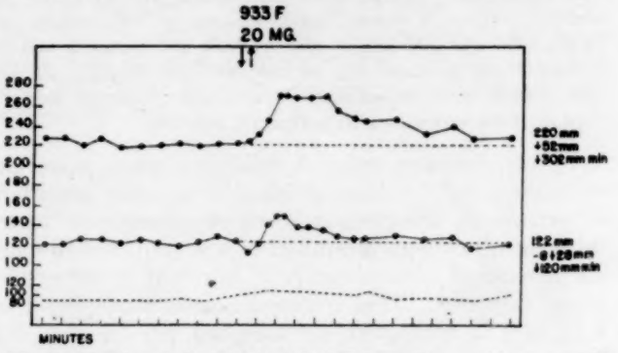

Fig. 5.—Results of the injection of 933F in a 41 year old woman with essential hypertension.

seconds was used. When the pressures were plotted as indicated and the areas calculated, the insignificance of this drop became apparent. The next case (fig. 6) represents the most marked example of this type of biphasic response which we observed. After the injection time was increased to two minutes no noteworthy fall of blood pressure preceded the pressor response.

CASE 6.—R. S., a woman aged 38, had had a toxemia of pregnancy thirteen years before admission. When the test was begun her blood pressure was 206 systolic and 116 diastolic, which had been its level for several years. After the injection of 16 mg. of 933F in thirty seconds, there was a transient fall in the systolic and diastolic values, followed by a more prolonged rise, so that the areas were strikingly positive—plus 205 millimeter minutes systolic and plus 50 millimeter minutes diastolic.

In normal subjects the drug had a mildly pressor effect and systolic and diastolic areas were uniformly positive. It was our impression that this pressor effect was more marked in older persons.

The sensitivity of the benzodioxane test, using both 1164F and 933F, was determined by epinephrine

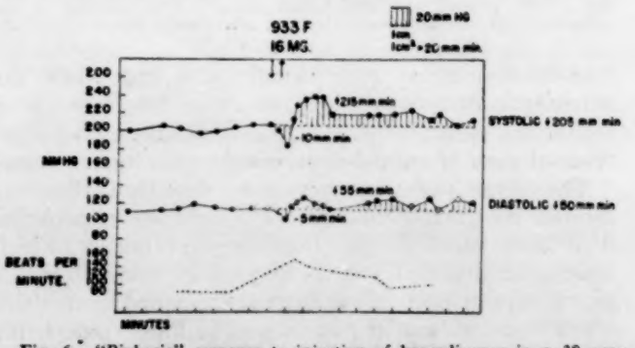

Fig. 6.—"Biphasic" response to injection of benzodioxane in a 38 year old woman with essential hypertension. Calculation of "areas" emphasizes the predominantly pressor effect.

infusion experiments. The threshold for the pressor effect of intravenous infusion of epinephrine is 0.1 microgram per kilogram per minute. The following experiment shows that epinephrine in quantities as small as 0.25 microgram per kilogram per minute is well within the range of the test.[18]

18. Weinberg, F.: Die Dosierung des Adrenalins bei der intravenoesen Dauerinfusion, Klin. Wchnschr. 4: 967, 1925.

Case 7.—J. D., a healthy 23 year old medical student, was given an intravenous infusion of isotonic solution of sodium chloride. When the blood pressure readings became relatively constant—in his case at 126 systolic and 70 diastolic—an epinephrine solution of 1 to 250,000 in isotonic solution of sodium chloride was infused at a rate which provided 20 micrograms per minute (0.25 microgram per kilogram per minute). When a steady blood pressure of 160 systolic and 70 diastolic was attained, 20 mg. of 933F was injected, and the systolic blood pressure fell 34 mm. and the diastolic 20 mm. The systolic area was minus 70 millimeter minutes, and the diastolic area was minus 60 millimeter minutes.

Fifteen infusion tests of this type were performed with essentially similar results. Since the sensitivity of persons to the pressor effect of epinephrine varies, the rate of epinephrine infusion was adjusted to cause an increase of approximately 25 per cent in the systolic blood pressure. This required amounts ranging from 0.25 to 0.35 microgram per kilogram per minute. The fall in pressure following the injection of the benzodioxane approximated in magnitude the rise induced by epinephrine. Although the epinephrine infusion produced no increases in the diastolic blood pressures,

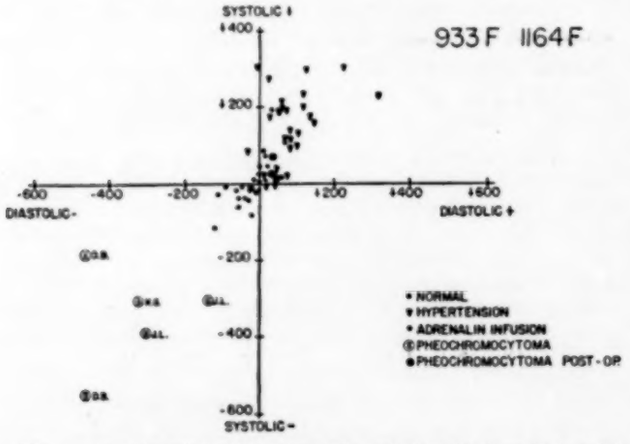

Fig. 7.—Graphic relationship of systolic and diastolic "areas" in millimeter minutes, expressing changes in blood pressure following intravenous administration of benzodioxanes. The only patients whose systolic and diastolic "areas" were both negative (third quadrant) were either those who had pheochromocytomas or those who received benzodioxanes during the course of an epinephrine infusion. Equally important is the fact that all the patients with pheochromocytomas and all but one of the epinephrine infusion experiments fall into this same quadrant.

falls in the latter were usually observed when the adrenolytic drug was administered in the presence of the infused epinephrine. This resembles the epinephrine reversal seen in animal experiments with higher doses.

The three pheochromocytomas described thus far showed far greater amounts of circulating epinephrine than those used in our infusion experiments, which were done with doses in the physiologic range. In the fourth case of pheochromocytoma described next, there was a response similar to that seen in these epinephrine infusion experiments.

Case 8.—P. D., a 12 year old boy, had exhibited outbursts of temper and uncooperativeness for six months, and during that time complained of headaches, with attacks of nausea and vomiting. He was admitted to the Babies' Hospital because of the rather abrupt onset of extreme deterioration of vision. Optic fundi showed papilledema (3 D.), narrowed arterioles, hemorrhages and exudates. Blood pressure was recorded as 260 systolic and 190 diastolic. While in the hospital he suffered a typical adrenal-sympathetic attack of pallor, sweating, severe pounding headache, cold and clammy extremities, nausea, vomiting and abdominal pain. During this episode his blood pressure fluctuated from 208 systolic and 178 diastolic to 270 systolic and 210 diastolic. After this bout his blood pressure began to decline slowly over a period of weeks toward normal values.

A benzodioxane test was performed at a time when his pressure had already fallen to 160 systolic and 128 diastolic. A short and slight drop in systolic and diastolic pressures occurred after administration of 12 mg. of 933F. The systolic pressure fell 22 mm. of mercury and the systolic area was minus 15 millimeter minutes; the diastolic pressure fell 18 mm. of mercury and the area was minus 20 millimeter minutes. This response was of the same order of magnitude as that seen in the epinephrine infusion experiments.

At operation the right kidney was found to be small and atrophic, and a tumor lay between the kidney and the vena cava, involving the renal vessels and the ureter. Pathologic examination revealed the tumor to be a pheochromocytoma showing extensive hemorrhagic necrosis. The pathologist estimated that only about 10 per cent of the tumor was viable enough to have any possible function. This necrosis probably explained the fact that no rise in arterial pressure occurred during the operation when the tumor was handled.

The benzodioxane test was repeated after operation at a time when the boy's blood pressure was 120 systolic and 92 diastolic. After an identical dose of the same benzodioxane, a mildly pressor response was observed, with a systolic area of plus 70 millimeter minutes and a diastolic of plus 20 millimeter minutes.

SIDE ACTIONS

In most cases sinus tachycardia was observed after administration of benzodioxane. In order of decreasing frequency, other side actions included: flushing, palpitation, nervousness, cold and clammy extremities, hyperpnea, mild headache, fright, sighing respiration and dizziness. Only one subject complained spontaneously, although 14, when questioned, said that they found it unpleasant. The other 44 were not disturbed at all by the test.

Disturbing side actions rarely lasted as long as three minutes, although a few patients felt somewhat tense for ten to fifteen minutes. No direct correlation could be made between disturbing side actions and the size of the pressor response; these were more common in hypertensive patients.

The majority of the side actions were seen with an injection time of thirty seconds; since this time has been increased to two minutes, their incidence has been strikingly diminished.

COMMENT

If the data in all of the 58 cases are charted on squared paper, a rather striking fact emerges (fig. 7). When the systolic areas are plotted as ordinates, and the diastolic areas as abscissas, only the pheochromocytomas and the epinephrine infusion experiments fall into the third quadrant where both systolic and diastolic areas are negative. Almost equally noteworthy is the finding that all of the pheochromocytomas and all, save one, of the epinephrine infusion experiments fall into the same quadrant.

SUMMARY

A simple test for hypertension due to circulating epinephrine has been devised, using benzodioxanes. Its value in the diagnosis of pheochromocytoma has been established in this investigation.

Epinephrine infusion experiments show that quantities of epinephrine as small as 0.25 micrograms per kilogram per minute are well within the range of this test.

Hypertension in cases of pheochromocytoma may outlast the presence of the pressor substance in the blood for weeks.

ANESTHESIA FOR THE AGED

JOHN B. DILLON, M.D.
Los Angeles

The increase in the average life expectancy from fifty years in 1900 to sixty-six years at the present time has resulted in a marked increase in the amount of surgical treatment given persons of advanced years.

There has been an increase in the amount of surgical treatment given patients 70 years of age and older, in the Los Angeles County Hospital, of 60.1 per cent in the past ten years (table 1).

The present report deals with the administration of anesthetics in 909 instances to 905 patients 70 years of age and older during a period of nine months from July 1, 1946 to March 31, 1947. For an interesting comparison one may refer to the excellent report by Baird [1] in 1943.

The number of cases dealt with by each of the principal services and in a general way the types of operation performed in the present series are indicated

TABLE 1.—*Incidence of Surgical Treatment Given Patients 70 Years of Age and Older*

Type of Treatment	1936-1937 Operations	1936-1937 Percentage	1945-1946 Operations	1945-1946 Percentage
1. Orthopedics	236* / 2,270†	10.0	419* / 1,897†	22.1
2. Genitourinary	214 / 875	24.5	305 / 695	43.9
3. General, including tumor	178 / 3,481	5.1	237 / 1,817	13.0
4. Other	202 / 4,072	5.0	420 / 3,802	11.0
Total	830 / 10,698	7.8	1,381 / 8,211	16.8

* Operations on patients 70 years old and over.
† All operations.

in table 2. The vital statistics of the patients are tabulated in table 3.

It is generally agreed and physiologically sound that, in the older age groups particularly, reduction of the circulating blood volume, diminution in the oxygenation of the blood and disturbances in metabolism, as a result of anesthesia and surgical treatment, cannot be tolerated. In choosing anesthesia for a particular patient in order to control these factors, five general categories must be considered: (1) preoperative diagnosis and physical status of the patient; (2) premedication; (3) choice of anesthetic method and agent; (4) supportive therapy, and (5) immediate postoperative care.

I. PREOPERATIVE DIAGNOSIS AND PHYSICAL STATUS OF PATIENT

The preoperative diagnosis and physical status of the patient control the other considerations to a large degree. It is particularly important to determine as accurately as possible the cardiovascular and respiratory reserves and the metabolic state of the patient. The administration of an anesthetic to the diabetic patient or to one with pernicious anemia requires particular consideration. The presence of hepatic and renal diseases, prevalent in this age group, modifies the choice of anesthetic procedure. Too much emphasis cannot be placed on the careful checking of the complete medical and surgical history and particularly previous anesthetic records or histories, if available. Certainly no patients should be considered for anesthesia until blood and urine studies are complete and there has been a check on the cardiovascular and respiratory systems.

TABLE 2.—*Breakdown of Operations by Service; Patients Over 70*

Service	Operations	
1. Orthopedic		
(a) Open reduction, fractured femur	155	
(b) Amputation, lower extremity	56	
(c) All other	81	
Total orthopedic		292
2. Genitourinary		
(a) Transurethral resections	121	
(b) Other lower genitourinary operations, cystotomies, fulgurations, etc.	102	
(c) All other	66	
Total genitourinary		289
3. General surgery (including tumor and chest)		
(a) Small and large bowel, including appendix	82	
(b) Gallbladder, stomach and organs of upper part of abdomen	52	
(c) Rectal, including abdominal perineal	30	
(d) All other	55	
Total general surgery		219
4. Neurosurgery		
(a) Intracranial	9	
(b) All other	2	
Total neurosurgery		11
5. Gynecologic surgery		
(a) Examinations, diagnostic curettage	12	
(b) Laparotomies, vaginal hysterectomies	13	
Total gynecologic		25
6. Miscellaneous		
(a) Plastic, ear, nose and throat, oral and all others	71	
Total miscellaneous		71
Total		905

TABLE 3.—*Vital Statistics, Patients 70 and Older*

Men	554	413 between 70 and 79; 151 80 and over
Women	343	245 between 70 and 79; 96 80 and over
Gross mortality 30 days		8.1%
Mortality, 70 to 79, 30 days		6.2%
Mortality, 80 and over, 30 days		13.2%

II. PREMEDICATION

It is desirable that the patient coming to surgery be given premedication so as to allay fear, lessen reflex activity, control pain if present and diminish salivation and mucous secretion. At the same time it must be remembered that drugs used for premedication may markedly alter vascular dynamics, respiratory activity and metabolism. The least premedication that can be expected to attain the desired results should be striven for. In this series 4.2 per cent of the patients, because of their physical status, received no medication before operation.

Our experience has been that morphine may depress patients in this age group out of all proportion to its expected effect, and that it is generally unpredictable. It has therefore been almost completely eliminated as a

From the Department of Anesthesia, Los Angeles County Hospital.
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premedicating drug for the aged. Meperidine hydrochloride in 25 to 50 mg. doses has proved satisfactory in the majority of cases. Codeine, 0.015 to 0.03 Gm., has also been useful. Opiates can safely be eliminated in many cases in which movement of the patient does not result in pain. Their use is most indicated in such cases as fractures. Colleagues and I eliminated opiates in 20 per cent of the premedication orders.

Barbiturates also depress the aged patient and must be used with caution. If the patient is not apprehensive, and many patients in this age group are not, the use of barbiturates, particularly if an opiate has been ordered, may well be eliminated. Phenobarbital sodium, 0.014 to 0.05 Gm., has been found to be the most satisfactory. However, in 26 per cent of the cases no barbiturate was considered advisable.

Small doses of the belladonna series are useful in reducing reflex activity and secretions. They also tend to offset the depressing action of the opiates and barbiturates on respiration. Atropine, 0.3 mg., or scopolamine hydrochloride, 0.3 mg., has been most commonly used.

TABLE 4.—*Breakdown of Anesthetic Agents Used as Primary Agent for Patients 70 and Over*

Ether	27
Cyclopropane	55
Nitrous oxide-oxygen	90
"Pentothal sodium"	56
Tetracaine hydrochloride	87
Mixture of tetracaine hydrochloride and procaine	157
Procaine hydrochloride	329
"Intracaine hydrochloride" (diethoxin)	85
Ice	10
Miscellaneous	13
Total	909
Anesthetic agents with which curare was employed:	
Cyclopropane	14
Ether	4
Nitrous oxide–oxygen	22
"Pentothal sodium"	1
Tetracaine and procaine	1
Procaine	1
Total	43

It is better to give insufficient premedication and to correct this by intravenous supplementation just prior to the administration of an anesthetic. To attempt to anesthetize a patient given too much premedication is both difficult and dangerous.

III. CHOICE OF ANESTHETIC METHOD AND AGENT

The choice of anesthetic method and agent for the aged patient must be based on an understanding of the alteration in anatomy and physiology peculiar to age as well as an evaluation of the individual patient. The circulatory system has lost many of its compensatory mechanisms through arteriosclerosis and degeneration. It is generally true that the respiratory system shows some degree of emphysema with loss of vital capacity and impairment of alveolar exchange. Hepatic and renal tissues have undergone variable amounts of degeneration with lowered function and reserve. Every effort must be made to spare these organs from the damage that may be incurred by the use of toxic agents or by the use of large doses of relatively nontoxic ones.

(*a*) *Inhalation Anesthesia.*—Inhalation anesthesia was used as the method of choice in 174 cases, or 16.9 per cent. This method was used for all thoracic operations and operations on the upper part of the abdomen, as well as in any case in which there was any reasonable question that the patient would be difficult to keep in physiologic equilibrium with any other method. In 87, or 50 per cent, of these instances of inhalation anesthesia the endotracheal technic was used. Among the advantages coincident with this technic as applied to the aged patient are: (1) a gas-tight system that may be difficult if not impossible to maintain by using a mask alone; (2) an absolutely patent airway, which alone is sufficient reason to recommend the method; (3) ability, during operation, to clear periodically the lower respiratory tree of mucus and other matter so frequently present in elderly persons; (4) ability to carry the patient in a lighter plane of anesthesia by eliminating the hazards of regurgitation and aspiration encountered in lightly anesthetized patients, and (5) ability to perform an adequate and thorough tracheobronchial toilet at the end of the surgical procedure, which aids in reduction of postoperative atelectasis and other pulmonary complications.

It is important in intubating the patient that no hypoxia be allowed to exist. Our present technic is careful anesthetization of the pharynx and larynx with 2 per cent tetracaine hydrochloride followed by rapid induction under anesthesia with "pentothal sodium" and oral intubation under direct vision. The aged patient is, with few exceptions, easy to intubate because of the laxness of the facial and neck muscles. The majority of these patients are brought under anesthesia and intubated within two minutes without evidence of hypoxia. Another technic employed has been the use of curare for relaxation with just sufficient "pentothal sodium" to keep the patient asleep. The patient is given oxygen during the four minutes that it takes for the curare to be maximally effective. Intubation is then performed. The patient is then given the anesthetic gas which was previously chosen. These methods have been used without harmful effect to the patient in over 500 cases, with both young and old patients, and reduce induction time, depth of anesthesia and potential hypoxia to a minimum.

Ether was used as the principal anesthetic agent twenty-seven times in this series of 174 instances of inhalation anesthesia. This amounts to 15.5 per cent of the cases in which inhalation was used. It was used least because its metabolic effects are most prominent. Cyclopropane was used in 31 per cent of the cases and was very satisfactory when no cardiac conduction defects or other contraindication, such as cautery, prevented its use. Nitrous oxide–oxygen anesthesia with "pentothal sodium" or meperidine hydrochloride to provide narcosis was used in the remaining 54.5 per cent of the inhalation cases. The aged patient does extremely well under nitrous oxide–oxygen if the oxygen content of the gas mixture is kept above 20 volumes per cent and the patient given only sufficient supplementation to prevent movement and to control reflexes. Metabolic effects of this combination are minimal and recovery is extremely rapid (table 4).

Curare has been used a total of forty-three times to secure adequate relaxation. It was most often used with nitrous oxide–oxygen and cyclopropane. Only on four occasions was it used with ether and then in very small doses. Preparations of curare have apparently no toxicity when ventilation is adequate.

(*b*) *Intravenous Anesthesia.*—Intravenous anesthesia was used a total of fifty-six times, or in 6.1 per cent of the total cases. It was used only for closed reductions, manipulations and examinations when amnesia and narcosis were of more importance than

surgical anesthesia. When "pentothal sodium" was the only anesthetizing agent used, oxygen was routinely administered with it.

(*c*) *Regional Anesthesia.*—Regional anesthesia has wide application for the aged patient, since it removes the possibility of many of the systemic effects of general anesthesia. It was used in certain instances because the patient, in our opinion, was unfit to stand some other method that might have been more desirable from a surgical point of view. More frequently it was used as the method of choice either alone or with very light "pentothal sodium" supplementation. Abdominal field blocks for gastroenterostomies, regional block for cystotomies and ankle and wrist blocks for more peripheral orthopedic procedures were frequently employed. A number of sciatic–femoral–lateral femoral cutaneous blocks were done for supracondylar amputation, and although theoretically sound and supplying adequate anesthesia, the manipulation of the patient incident to the block has caused it to be discarded. Regional anesthesia was used one hundred and fifty-eight times, or in 17.3 per cent of the cases (table 5).

(*d*) *Refrigeration Anesthesia.*—Refrigeration anesthesia was used only ten times, but was highly satisfactory. It will be used more in the future, since the patient's general condition is frequently much improved after the anesthesia has become established.

(*e*) *Spinal Anesthesia.*—Spinal anesthesia was used in 507, or 55.7 per cent, of the cases. When certain precautions are observed, our experience has been that spinal anesthesia is the method of choice for surgery of the lower extremities and the pelvis. It was used for the majority of cases of open reduction of fractured hips, transurethral resections, amputation, cystotomies and for similar cases. The precautions that have been found wise to observe are the following: 1. Spinal anesthesia is not employed when the preoperative blood pressure is above 180 mm. of mercury systolic. 2. Spinal anesthesia is not used when there has been a significant drop in blood pressure following premedication. We consider a drop of 20 mm. of mercury as significant. 3. Spinal anesthesia is not used when there is evidence of anemia (hemoglobin level of less than 12 Gm.), disease of the central nervous system (other than that incident to senility) or when there has been recent shock. 4. The dose of anesthetic agent is always kept small. One hundred milligrams of procaine or 10 mg. of tetracaine is maximal and infrequently used. 5. Small doses of ephedrine, or similar analeptic, are used intramuscularly or subcutaneously prior to the administration of the spinal anesthetic to assist in preventing fall in blood pressure. 6. The level of anesthesia is kept below the level of the tenth thoracic segment and when possible is kept unilateral. 7. Supportive therapy is routinely employed.

For increasing the duration of the spinal anesthesia 15 to 25 mg. of ephedrine is incorporated with the drug used intrathecally. Fractional spinal anesthesia by the Touhy catheter technic has been used twenty-one times for prolonged operation in which spinal anesthesia was considered suitable for the patient.

IV. SUPPORTIVE THERAPY

The supporting of the aged patient undergoing surgical treatment by adequate replacement therapy and by the use of oxygen is, in my opinion, more important than the use of any particular anesthetic technic or agent.

All patients of the age group being discussed, except those coming to surgery for superficial biopsies and like procedures, receive some fluid, parenterally. The judicious use of fluids tends to overcome presurgical dehydration and helps the vascular system accommodate to minor fluctuations in volume of circulating blood incident to change in blood pressure. It is a ready means of supplementary medication for the starting of blood transfusion if desirable. Sixth molar lactate is the solution routinely used in this hospital before transfusions, and has largely eliminated minor transfusion reactions. This solution is also valuable in stabilizing the acid-base balance.

Blood loss is poorly tolerated by patients of advanced years. I cannot see the rationale of the so called "postoperative transfusion." Rather, I believe that blood should be replaced as it is lost, so that, so far as possible, there is no significant alteration of circulating blood volume, with its effects of slowing circulation, lowering oxygen-carrying capacity of the blood and potentiating

TABLE 5.—*Breakdown of Anesthetics by Method—Patients of 70 and Over*

1.	Inhalation		174
	a. Endotracheal	87	
	b. Absorption in circuit	70	
	c. Semiclosed	9	
	d. Open	8	
2.	Intravenous		56
	a. "Pentothal sodium"	56	
3.	Regional		158
	a. Caudal, including transsacral	33	
	b. Regional blocks (supplemented)	40	
	c. Brachial plexus	8	
	d. Cervical block (bilateral)	1	
	e. Miscellaneous nerve blocks	76	
4.	Spinal		507
	a. Single dose	486	
	b. Fractional	21	
5.	Refrigeration		10
	a. Lower extremity	10	
6.	Miscellaneous		4
	Total		909

a vascular catastrophe or leading to irreversible shock. It is much better to prevent excessive loss of blood by covering it as it occurs than to attempt to treat it.

All patients undergoing surgical treatment of a type in which loss of blood is at all significant receive blood on the operating table. Among these types of cases are open reductions and transurethral resections, as well as all cases of intra-abdominal surgery.

Oxygen is used even more freely than transfusion. All patients 70 and over receive oxygen as part of a regional or spinal anesthetic. Oxygen is always given when "pentothal sodium" is used. Even in the nitrous oxide-oxygen anesthetics when "pentothal sodium" and meperidine hydrochloride are used, the oxygen concentration is kept as high above 20 volumes per cent as is possible to use and still maintain anesthesia. This is usually around 30 volumes per cent by measurement.

Blood and oxygen are two of the most valuable tools which the anesthetist has to support the aged patient through the ordeal of surgical treatment. They should not be reserved to treat emergencies; they should be used to prevent them.

V. POSTOPERATIVE CARE

The immediate postoperative care and early mobilization of the aged patient are as important in his recovery as the operating room treatment. Adminis-

tration of a light general anesthetic or of regional or spinal anesthetics does not necessitate keeping the patient in bed in order that he may recover from the effects of the anesthetic. Adequate supportive therapy likewise lessens the period of bed rest, as the patient is not so weak from loss of blood that he cannot be gotten up at the earliest possible moment.

Complications and Mortality.—It is difficult, if not impossible, to evaluate accurately the part of anesthesia in postoperative morbidity and mortality in the aged patient because of the influence of uncontrollable and unpredictable factors. The greatest number of complications incident to anesthesia and surgery were of the vascular system. There was a significant fall in blood pressure (20 mm. of mercury or more) in 10.4 per

TABLE 6.—*Mortality Study, Patients 70 or Older*

	Number	Percentage
1. Death by postoperative period		
a. On operating table	1	1.35
b. On operative day	11	14.8
c. 1 to 3 days after operation	20	27.1
d. 4 to 7 days after operation	15	20.3
e. 8 to 14 days after operation	8	10.8
f. Over 14 days after operation	19	25.7
Total	74	
2. Death by anesthetic method		
a. Inhalation	26	14.9*
b. Intravenous	2	3.5*
c. Regional	23	14.5*
d. Spinal	22	4.3*
e. Refrigeration	1	10.0*
Total	74	
3. Death by primary agent		
a. Ether	5	18.5*
b. Nitrous oxide-oxygen	9	10.5*
c. Cyclopropane	12	21.8*
d. "Pentothal sodium"	2	3.5*
e. Ice	1	10.0*
f. Procaine	30	9.1*
g. Procaine-tetracaine hydrochloride	9	5.4*
h. "Intracaine hydrochloride" (diethoxin)	4	4.7*
i. Miscellaneous combinations not listed	2	15.4*
Total	74	
4. Death by preoperative diagnosis		
a. Malignant growths, all types	25	33.7
b. Vascular disease, gangrene	12	16.3
c. Fractured hip	10	13.5
d. Obstruction of bowel	8	10.8
e. Obstruction of urinary tract	6	8.2
f. Incarcerated hernias	5	6.7
g. Compound fractures	2	2.7
h. All other	6	8.2
Total	74	

* Percentage of total number of times that agent was used.

cent of the instances of spinal anesthesia, 8 per cent of the instances of inhalation and 12 per cent of the instances of anesthesia with "pentothal sodium." The incidence of shock was 2.7 per cent, with the greatest number occurring in patients with fractured hips with no particular relation to anesthesia.

There were 16 patients, or 1.7 per cent, who had their postoperative course affected by pneumonia, again with no significant distribution related to anesthesia. There was 1 case of massive atelectasis and 1 of pulmonary edema in the postoperative period—none during surgical treatment.

I do not believe that it is possible to draw any conclusions regarding the effect of using any particular anesthetic agent or technic on postoperative morbidity and mortality. In these cases the choice of agent and technic was made from an evaluation of the patient rather than for the purpose of studying the efficacy of certain procedures for certain operations.

The gross mortality rate was 8.1 per cent for this series as compared with 7 per cent gross mortality for the surgical services including all age groups for the year 1945-1946.

There was 1 death on the operating table. The patient had been given a spinal anesthetic for the open reduction of a fractured hip. After thirty-five minutes of anesthesia, uncomplicated by fall in blood pressure or signs of distress, the patient complained of a pain in his chest and died. No autopsy was secured, but it seems reasonable to believe that this was a coronary episode.

Table 6 gives a breakdown of the mortality in this series. In considering the incidence of deaths by postoperative day, I believe that the effects of anesthesia and surgical treatment were minimal after the fourteenth day. The incidence of postoperative mortality jumps markedly in patients over 80, but this is to be expected. The incidence of mortality by anesthetic methods and agents is included to emphasize its lack of significance. I believe that the low incidence of mortality in patients who received spinal anesthesia, for instance, was due to the choice of patient, his operating room and postoperative care, and not because spinal anesthesia per se carries a low mortality rate. On the other hand, the high death rate following regional anesthesia was due to the fact that it was given to all patients for whom we felt other anesthesia would be detrimental, and does not indicate that regional anesthesia is not sound.

The tabulation of death by preoperative diagnosis gives some indication of the importance of malignant growths as a surgical entity in this age group.

SUMMARY

1. Surgical treatment is increasing in frequency for patients over 70. Preoperative consideration of the patient is absolutely necessary to determine the anesthetic method best suited to him. Premedication should be kept minimal and depression avoided. The anesthetic agents and methods employed should disturb the patient's physiology as little as possible. Operative care of the patient, particularly the use of blood and oxygen in the operating room, is essential if the patient is to have the maximum chance of recovery. The immediate postoperative period of patients over 70 is critical, and proper care of these patients and early mobilization is essential. If anesthesia is chosen on the basis of the patient's physiology, premedication is kept minimal, supportive therapy is used routinely, then postoperative morbidity and mortality are more related to the effects of age and of preoperative pathologic state than to anesthesia and surgical treatment.

ABSTRACT OF DISCUSSION

DR. ANSEL M. CAINZ, New Orleans: Over a period of twenty-three months, I have had 205 cases in my private practice. Dr. Dillon's discussion of five different "categories" is excellent. The essentialness of knowing the physical condition of the patient is well emphasized. Most of these patients "have gotten used to living," and can stand a good deal of surgical treatment if thoughtfully handled and properly taken care of. Correction of undermedication is easy, while there is nothing to do about overdosage. With the exception that we do most of our operations on the upper part of the abdomen with the patients under spinal anesthesia, there is little difference in opinion. In 27 of 31 operations on the upper part of the abdomen spinal anesthesia was used. Had we had the advantages of curare when

we were using inhalation anesthesia, probably we should not have changed, but when properly taken care of, patients do well under spinal anesthesia. The desirability and advantages of a free airway have been fully covered. The free airway protects the heart from strain and lessens the likelihood of postoperative edema. The technic mentioned for readying patients for intubation is much quicker, safer and easier than soaking for complete relaxation, with ether or cyclopropane. Spasms, which put a strain on the heart, are avoided, too. With the nontoxic agents nitrous oxide and ethylene available for inhalation, "pentothal sodium" in low percentage drip supplemented by tubal injection if needed, curare as a supplementary relaxant and an assured free airway with plenty of oxygen, there are few cases in which anesthetics cannot be safely used. I agree with what is said about supportive therapy. Little preparation for immediate replacement of blood loss in support of these patients is still too often the case. Sufficient oxygen and blood, with careful anesthesia, will permit much surgical treatment to be done safely in most cases. All patients should be thoroughly ventilated with air after surgery. We accomplish this by flowing carbon dioxide through a hose over the face. As soon as several deep inspirations are accomplished, the carbon dioxide is discontinued. After surgical treatment this is accomplished by deep respirations at frequent intervals if the patient will cooperate. If not, the carbon dioxide "kick" is practiced. Thorough ventilation at frequent intervals is good preventive pulmonary therapy. We believe in an excess of oxygen when at all indicated.

DR. MARY KARP, Chicago: The anesthetic problems met in the aged are not those of age itself but of the complicating diseases. Our interest in the geriatric patient became emphasized through the study of unselected surgical cases presenting complications of hypertension, coronary disease and other cardiac disease. We found that the problem tended to be a geriatric one, as 67 per cent of the patients were elderly, 50.1 per cent being between the ages of 50 and 70 and 17 per cent over 70. It is interesting to note the variations found in percentages of deaths and complications during the hospital stay after the use of different anesthetic agents and methods in our series as compared with the essayist's. In patients over 60 years of age, the death and complication rates were considerably higher after spinal anesthesia, 10.8 per cent and 36.9 per cent respectively, than those following inhalation, 1.5 per cent and 12 per cent. After ethylene-ether anesthesia, the death rate was 31.3 per cent and the complication rate was 19.8 per cent. No deaths or complications occurred in those patients receiving cyclopropane anesthesia alone. However, when ether was added to the cyclopropane no deaths occurred, but the complication rate was high, 37.7 per cent. The death and complication rates in the cases in which curare was used as an adjunct were similar to the rates seen after ethylene-ether anesthesia. The complication rate following intravenous anesthesia was comparable to that of the inhalation group as a whole, and no deaths occurred. Those elderly patients with cardiac disease appeared to tolerate spinal anesthesia in our series less well than did those under 60 years of age, while results with inhalation methods were similar in the two age groups. In the aged, cyclopropane gave more satisfactory results as an inhalation agent than did ethylene ether. The variations that are experienced in our work as compared with those of the essayist may be due to the fact that in our series the aged were all patients with cardiac disease and that we used 60 years as the dividing line instead of 70. Dr. Dillon's precautions may well be observed. Spinal anesthesia is not employed by him when the preoperative blood pressure is above 180 mm. of mercury systolic or when there has been a significant drop in blood pressure following premedication, and the level of anesthesia is kept below the tenth thoracic segment. These precautions may well explain his excellent results. Dr. Dillon's paper is highly significant and emphasizes that basic understanding of the patient's pathologic processes, judicious preoperative and postoperative management, careful selection and administration of anesthetic, meticulous attention to the nutritional status, water and electrolyte balance and adequate oxygenation should make management of the geriatric patients no greater a hazard than the managing of the younger age groups.

DR. JOHN B. DILLON, Los Angeles: I agree with Dr. Caine that ethylene might be a highly desirable agent. We have not used it much for the aged and we use it little because cautery frequently is used. Postoperative ventilation is almost an absolute necessity for these patients because if they are allowed to go into respiratory depression they certainly will contract pulmonary disease. The greatest need has been emphasized this morning by another essayist, the desirability of a recovery ward. I do not see how we can do our best for the patient unless we have recovery wards. We do not have one. We have had over 1,200 cases in which patients were over 70 years of age. We are averaging better than 100 a month. We have had just the 1 death on the table. I am not surprised that spinal anesthesia has a higher death incidence than other types of anesthesia, but I feel that the anesthesia for these patients must always be chosen for the patient and never for the operation. There are so many ways of giving anesthetics that no one particular method should take precedence, despite the fact that in 50 per cent of our cases spinal anesthesia was used. I am convinced that in the type of case in which anesthesia can be kept below the tenth thoracic segment, spinal anesthesia is physiologically sound. Also, I think that if we consider patients over 70 years of age as "cardiacs," whether or not they have demonstrable cardiac disease, we will go a long way toward reducing our difficulties.

Special Article

HEALTH AMONG THE NAVAJO INDIANS*

OZRO T. WOODS, M.D.
Dallas, Texas

NOTE.—*The following special report on medical conditions among the Navajo Indians was made by a group of physicians who were sent by the Department of the Interior as representatives of the American Medical Association. The arrangements were made by a committee of the American Medical Association, which is advisory to the Hon. J. A. Krug, Secretary of the Interior. The team, which was developed from Southwestern Medical College in Dallas, Texas, comprised Dean W. Lee Hart, Dr. Ozro Woods, Dr. Martin S. Buehler, Dr. Francis Reichsman, Dr. Salmon R. Halpern, Dr. John Henry Fish and Dr. Arthur Grollman. This project was approved by the House of Delegates of the American Medical Association.*—ED.

THE PRESENT SITUATION

Undernutrition and Vitamin Deficiency Among the Navajo Indians.—The Navajos share almost uniformly a state of definite undernutrition. The only exceptions are the children who have been in boarding schools and the Indians living around Shiprock, where better food is available.

The Wide Prevalence of Tuberculosis.—Pulmonary, bone and gland tuberculosis are seen in every hospital and in every group of children. Adequate records are not available that permit an accurate statement of the incidence of tuberculosis. The often quoted statement that it is six times as common as throughout the United States seems reasonable. The prevalence of tuberculosis is definitely related to undernutrition and poor hygiene.

High Death Rate of Infants and Children.—The hospitals were almost half occupied by children, mostly with diarrheas and with acute infectious diseases. Here again poverty and ignorance stand as principal cause. The feeding of the infants and children has not changed or improved in many generations.

Lack of Preventive Measures in Control of Communicable Diseases.—An incomplete program reaches the children in most of the schools. The many children who do not attend school are entirely missed.

Present Health Program.—The health program is built around a system of widely scattered hospitals, five of which are operating, three closed, and one without a physician. Some Indians live 100 miles from a hospital over almost impassable roads. During part of the year when many of the roads are impassable, most of the Navajos do not have access to any kind of medical service. At best the poor communications, lack of sufficient ambulances or other transportation makes the statement true for a large part of the population. At best only relatively few patients reach the hospital early enough in the course of their disease to benefit most from treatment. Hospital death rates are high. Many patients arrive in a dying condition.

About half the beds in the hospitals were occupied by patients who did not need hospital care. They were kept long after recovery, or had not been ill enough to justify admitting, or were "boarders" (mothers nursing sick babies, or babies or children awaiting recovery of mothers). With the exception of the Tuberculosis Division at Fort Defiance, none of the hospitals were much more than half full (some beds were closed due to budgetary limitations).

With the exception of the hospitals at Crown Point and Fort Defiance the patients were receiving inadequate medical care. This was due to poorly qualified and insufficient medical personnel. These older physicians have not had the advantage of recent medical training and do not know modern methods of treatment and how best to use the facilities of the hospitals. Since personnel is the fundamental requirement of a good health program, it will be discussed in a constructive manner in the recommendations.

There is practically no preventive medical program and no sanitary engineering service. The social welfare program is not sufficiently developed to be really helpful to the medical service. There is no medically directed health education program. A health education program can hardly function successfully unless it is directly tied in with the health service.

As a general statement the health problem of the Navajo may be stated as the prevention and controlling of infectious and communicable diseases in a widely scattered, poorly nourished, ill housed people. Metabolic and degenerative diseases that are relatively uncontrollable are very uncommon.

RECOMMENDATIONS

Establishment of an Adequate Field Service.—The proposed plan of replacing and enlarging these small scattered hospitals is perhaps unsound. The poorest of these facilities are as good as or better than the average for rural people throughout the country. No more hospitals should be built until the present facilities are used effectively and to capacity. As in any other population, the great majority of the ill persons can be satisfactorily treated early as ambulatory patients.

A field service should be established, each unit to consist of a well qualified physician and a nurse, preferably with public health training, who would operate from widely scattered health centers. Early treatment will reduce the number of patients needing expensive hospital treatment. The field doctor will select the patients who need hospital care or more skilled diagnostic services. When the emergency hospital care is finished the patient will be returned to the field doctor to complete and follow up the treatment. The number needed and location of these field health units can be determined only by experience. The patterns of rural health services cannot be directly implanted into the Navajo country. They will need adaptation under the most competent direction. The director of the field service should be the chief of the entire health service.

Establishment of Medical Center.—When the field service develops so that most of the Navajos are served, there will probably be need of more general hospital beds. They should be mostly added to Fort Defiance Hospital, some to Crown Point. Possibly Keams Canyon should be kept for the Hopis. The development of transportation service will determine the advisability of continuing the Tuba City Hospital. All the others should be used as health centers or in some supplemental use as soon as the beds can be replaced by increasing the capacity of the medical center.

The concentration of patients will do two things. It will reduce the excessive patient cost per day that now prevails and would make specialists available to all patients. Air strips are being built and adequate rapid transportation of patients should soon be available.

A diagnostic outpatient service using the specialists at Fort Defiance and complete laboratory facilities which are badly needed should be organized. Simple boarding care should be furnished these ambulatory patients that would be referred in by the field service for consultation. In many instances they can be referred back to the field service physician for treatment.

Improvement of Medical Personnel.—The need of competent physicians has been emphasized. This means men and women with modern medical training and in many instances physicians who have had complete specialty training. These men cannot be secured under the civil service pay scale. The Veterans Administration found this to be true. The isolation that goes with living widely scattered in the Navajo country is an important factor. Premium pay must be given for field service. Good physicians will not stay in the Navajo medical service unless provisions are made for them to keep their training up to date, nor would they tender good service if they stayed. Consulting service should be developed with a twofold purpose: to provide the patients with the best medical care and to give postgraduate training to the personnel (a similar plan was used by the Army in the Eighth Service Command with unusual success). This will require not only the best consultants but men who are teachers. Such men are most easily secured from the faculty of a good medical school. Arrangements could be made for a full time consultant's pay. The medical school could send in succession specialists who would spend one or two months. These specialists would work in the hospitals caring for patients. The field doctors could join the hospital staff for regularly scheduled teaching programs. A reasonable pay scale and a good consulting and teaching plan will attract good physicians to the Navajo Medical Service. Of course, the same applies to nurses.

The professional services of both physicians and nurses should be supplemented by the use of more Navajos as aids. Because of the language difficulties they will be a necessity in the field program. They will be most effective in a health education program.

Improvement of Nutrition.—Any health service is going to be limited by the serious undernutrition of, especially, infants and children. An ill nourished body cannot be completely protected from disease by the most satisfactory scientific health service. The poor nutrition of the Navajo is due to lack of money to buy

sufficient food and to ignorance in selecting diet and poor food habits. As physicians recommendations for the economic plight of the Navajos are not our problem. They would be a happier, more useful people if they had economic relief. As an emergency measure, if they could receive agricultural surpluses and buy basic foods at more nearly cost their nutrition could be improved materially. Education in nutrition can only go hand in hand with the opportunity to have better food.

Cooperation with the Health Services of Arizona and New Mexico.—The Navajo Reservation is a dangerous reservoir of communicable diseases, especially tuberculosis. From ten thousand to fifteen thousand Navajos leave the reservation yearly largely for seasonal employment. With rare exceptions there is no health-screening or preemployment examination. It was astonishing that satisfactory working arrangements had not been made with the health departments of the neighboring states. The health departments of Arizona and New Mexico were visited, and they pledged their cooperation. Special effort should be made by the Indian Service to work with these health departments. They have many common problems. Case-finding records of communicable diseases, especially venereal diseases and tuberculosis, should be exchanged and notification of follow-up studies should be reported. Cooperative effort in collecting vital statistics will be necessary to correct the almost entire lack of any useful data now available.

Since it seems a natural development and it is the intent of Congress as stated in last year's appropriation committee that more responsibility of Indian affairs should be gradually assumed by the states, this vital matter of common health problems should be one of the first cooperative efforts. The burden lies largely with the Indian Service.

SUMMARY

The Navajos receive incomplete and poor health service. The incidence of preventable diseases is high. The incidence of the relatively uncontrollable diseases seems relatively low. The present plan of medical care will not solve the problem.

Medical care must be taken to the Navajo in the form of accessible field service. Hospitals should be reduced in number, enlarged, and better service rendered. A highly developed diagnostic center is needed for ambulatory patients. Good medical service can only be furnished by well trained physicians who demand good pay and inservice training opportunities. Large capital expenditures are not immediately needed. Present hospital facilities are less than half used effectively.

Local and state health services should be met more than half way to initiate cooperation in common problems. The control of funds and planning and direction of the health services should be completely in medical hands. A medically directed health education program should be developed.

The Navajos want and will accept graciously and appreciatively the health services that they deserve.

HOPIS

The health problems of the Hopis are not as acute or distressing as those of the Navajos. The Hopis are more industrious, better farmers and are much better nourished. They live in villages and have attended school.

They now have an incomplete field service furnished by one nurse. A physician and more visiting nurses for field service with improvement of medical care in their hospital at Keams Canyon would give them a reasonable health service.

At present their hospital is about half occupied by Navajos who feel out of place and largely uncomfortable.

Clinical Notes, Suggestions and New Instruments

BRUCELLA AGGLUTINATION TESTS AND VACCINATION AGAINST CHOLERA

C. WESLEY EISELE, M.D.
NORMAN B. McCULLOUGH, Ph.D., M.D.
GRACE A. BEAL
Chicago
and
WILLIAM ROTTSCHAEFER, M.D.
Ann Arbor, Mich.

The appearance of Brucella agglutinins in significant titers following the administration of cholera vaccine has been reported to occur in 7 of 8 persons.[1] In further observations [2] on an additional 20 subjects given the standard two dose cholera vaccination, 80 per cent showed positive Brucella agglutination reactions in dilutions of $\frac{1}{40}$ or higher, and 60 per cent showed positive reactions in dilutions of $\frac{1}{160}$ or higher. One person showed agglutinins in dilutions as high as $\frac{1}{2,560}$ partial and $\frac{1}{1,280}$ complete. The reaction to the opsonocytophagic test also became positive after vaccination in 80 per cent of the 20 subjects. In 65 per cent of them, the test became strongly positive with phagocytosis by 80 to 100 per cent of the cells. The brucellergin cutaneous tes did not elicit a positive reaction after vaccination.

Studies on the antigenic interrelationship of Vibrio comma and the Brucella group indicate that a common antigen exists, identified as an H antigen of Vibrio comma.[3]

We have previously directed attention to the diagnostic confusion which may arise from the production of Brucella antibodies in response to cholera vaccination.[4] The agglutination test is the most commonly used procedure for the diagnosis of brucellosis. A positive reaction even in low titers frequently, albeit deplorably, is used to confirm a clinical diagnosis of brucellosis in the presence of vague symptoms. Some 3,000,000 veterans have been vaccinated against cholera during their military service. It therefore becomes important to evaluate the magnitude of this likely source of diagnostic confusion.

METHODS AND MATERIAL

Brucella agglutination tests were performed on serums obtained from 100 persons who had been vaccinated against cholera during military service. Fifteen of the subjects were veterans in apparent good health. Eighty-five were patients in a U. S. Navy Hospital. None of them were suspected of having brucellosis, and they were hospitalized for a wide variety of illnesses. Five diagnoses accounted for 72 per cent of the patients. They were as follows: cyst teratoma, 23 cases; peptic ulcer, 20 cases; fracture, 10 cases; osteomyelitis and periostitis, 5 cases, and bacillary dysentery, 3 cases. Six patients were judged to

Aided in part by a grant from Swift and Company.

From the Department of Medicine, School of Medicine, University of Chicago (Drs. Eisele and McCullough and Miss Beal).

1. Eisele, C. W.; McCullough, N. B.; Beal, G. A., and Burrows, W.: Development of Brucella Agglutinins in Humans Following Vaccination for Cholera, Proc. Soc. Exper. Biol. & Med. **61**: 89 (Jan.) 1946.
2. Eisele, C. W.; McCullough, N. B., and Beal, G. A.: Ann. Int. Med., to be published.
3. McCullough, N. B.; Eisele, C. W., and Beal, G. A.: To be published.
4. Eisele, C. W.: Some Problems in the Diagnosis of Chronic Brucellosis, M. Clin. North America **31**: 182 (Jan.) 1947. Footnote 1.

have no disease. The remaining 18 had a variety of illnesses, no 2 of them with the same diagnosis.

The date of the cholera vaccination was known to us in 74 cases, but was unavailable in the remaining 26. For those in which it was known, the interval between vaccination and the Brucella agglutination test ranged from six to twenty-eight months, with an average of thirteen months. It may be presumed that the group in which the date of vaccination was not known corresponds closely in this respect to the known group.

The agglutination test was performed by the Huddleson rapid slide method in all cases. In 63 instances it was also performed by the standard slow test tube method. Brucella opsonocytophagic tests were performed on 15 persons by the method of Huddleson.

RESULTS AND COMMENT

The results of the Brucella agglutination tests are presented in table 1. The subjects are divided into two groups, those in whom the date of vaccination was known to us and those in whom this date was not available. There are no significant differences between the two groups regarding the incidence of agglutinins persist longer than twenty-eight months in any appreciable number of persons is not known. It is conceivable that a significant titer may recur many months after the disappearance of the agglutinins from the circulation as an anamnestic response to the stimulus of some nonspecific febrile illness.

Twenty-two persons had one or more booster injections subsequent to their original cholera vaccination—18 had one, 3 had two and one had three booster vaccinations. The Brucella agglutination titers of these 22 subjects are not significantly different from the titers of those receiving only the original vaccination. Of those having had booster vaccine, 36 per cent had titers of 1/40 or higher compared to 41 per cent for the group as a whole; and 18 per cent had titers of 1/80 or higher compared to 20 per cent for the entire group. Similarly, the titers in relation to the interval between the last booster vaccine and the agglutination test are not significantly different from those for the persons receiving only the original vaccination.

Of the 15 opsonocytophagic tests, only 5 showed no opsonic activity. Ten elicited positive reactions ranging up to 88 per cent marked phagocytosis.

TABLE 1.—*Brucella Agglutination Tests on Cholera-Vaccinated Military Personnel*

	Brucella Agglutination Titer													
	Negative		1/20		1/40		1/80		1/160		1/40 or Higher		1/80 or Higher	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Group 1—74 persons tested 6 to 28 months after vaccination	33	44.6	11	14.9	16	21.6	10	13.5	4	5.4	30	40.5	14	18.9
Group 2—26 persons the date of whose vaccination is unavailable	13	50.0	2	7.7	5	19.2	4	15.4	2	7.7	11	42.3	6	23.1
Total series of 100	46	46.0	13	13.0	21	21.0	14	14.0	6	6.0	41	41.0	20	20.0

TABLE 2.—*Results of Brucella Agglutination Tests on Cholera-Vaccinated Military Personnel in Relation to the Interval Since Vaccination*

	Brucella Agglutination Titer														
	Negative		1/20		1/40		1/80		1/160		1/40 or Higher		1/80 or Higher		Total
Months Since Vaccination	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No. of Cases
6 to 11	15	50.0	4	13.3	6	20.0	4	13.3	1	3.3	11	36.6	5	16.6	30
12 to 17	11	33.3	6	18.2	8	24.2	5	15.2	3	9.1	16	48.4	8	24.2	33
18 to 28	7	63.6	1	9.1	2	18.2	1	9.1	0	0.0	3	27.3	1	9.1	11
Date not known	13	50.0	2	7.7	5	19.2	4	15.4	2	7.7	11	42.3	6	23.1	26

positive reactions in the various dilutions. Consequently, the results for the entire series are essentially the same as for the group with the known dates of vaccination. In the entire series, 54 per cent showed positive agglutination in dilutions of 1/20 or higher, 41 per cent in dilutions of 1/40 or higher, and 20 per cent in dilutions of 1/80 or higher.

In the 63 instances in which the agglutination test was performed by both the rapid slide and the slow test tube methods, the results were in reasonably good agreement. In 60 per cent the agreement was perfect, and in 86 per cent there was either agreement or a difference of not more than one dilution. Consequently, we have tabulated the results obtained by the rapid slide method only. We have discussed in a previous paper the discrepancies which may arise in using different antigens and different methods.[5]

The distribution of the titers in relation to the interval between cholera vaccination and the Brucella agglutination test is shown in table 2. The number of cases in each six month period is not large enough to draw definite conclusions, but, as would be expected, those vaccinated more than eighteen months before the sampling showed a somewhat lower incidence of positive reactions. Nevertheless, 27 per cent of this group had agglutination titers of 1/40 or higher. Whether Brucella

The occurrence of positive Brucella agglutination reactions in 56 per cent of 100 cholera-vaccinated military personnel is striking in comparison with the results observed in a Brucella agglutination survey made on 11,000 routine Wassermann serums from civilians.[6] Somewhat less than 2 per cent of these serums had Brucella agglutinins in titers of 1/25 or higher. The incidence of positive reactions in the clinic and hospital patients, who composed about two thirds of this series, was no greater than that in the presumably healthy group made up of blood bank donors, prenatal patients, and those undergoing employment examinations.

SUMMARY

In 100 subjects who had been vaccinated against cholera while in military service, 56 per cent had positive Brucella agglutination reactions in titers of 1/20 or higher, 41 per cent had titers of 1/40 or higher and 20 per cent had titers of 1/80 or 1/160. In the group who were tested eighteen to twenty-eight months after vaccination, 27 per cent still had titers of 1/40 or higher.

Brucella antibodies are engendered by cholera vaccination. It may reasonably be expected that unless this fact is widely recognized, added confusion will occur in the diagnosis of chronic brucellosis—a disease which is already notoriously difficult to diagnose.

5. Eisele, C. W.; McCullough, N. B., and Beal, G. A.: Discrepancies in the Agglutination Test for Brucellosis as Performed with Various Antigens and as Reported from Different Laboratories, J. Lab. & Clin. Med. **32**: 847 (July) 1947.

6. Eisele, C. W.; McCullough, N. B., and Beal, G. A.: To be published.

VENTRICULAR FIBRILLATION OF LONG DURATION ABOLISHED BY ELECTRIC SHOCK

C. S. BECK, M.D.
W. H. PRITCHARD, M.D.
and
H. S. FEIL, M.D.
Cleveland

Ventricular fibrillation occurs as the terminal arrhythmia in approximately 50 per cent of patients.[1] If ventricular fibrillation develops in hearts that are relatively normal, especially during operations, defibrillation may be life saving. During the period before regular rhythm is restored the heart must be exposed and rhythmically massaged in the interval. This method of cardiac resuscitation has been developed in the laboratory by Hooker,[2] Wiggers,[3] and Beck,[4] and applied to patients by the latter. The method consists of the injection of 5 cc. of 2 per cent procaine hydrochloride into the right side of the heart followed by a brief period of cardiac massage to distribute the drug throughout the myocardial bed. The heart is then placed between two large electrodes and ordinary 110 volt alternating current with 1.5 amperes is momentarily impressed through the heart between the electrodes. Usually a series of such shocks is necessary to accomplish defibrillation. If the treatment is successful, the ventricles cease fibrillating and remain in standstill momentarily before a supraventricular rhythm is established. Massage is again continued until the vigor of the heart beat is sufficient to empty the cardiac cavities of blood. Defibrillation of the human ventricles at the operating table has been performed five times at this hospital in the past, but all patients have subsequently died without regaining consciousness. We are reporting the first case with complete recovery after prolonged ventricular fibrillation. We present it with the hope that, following Beck's suggestion,[5] operating rooms will be equipped to handle cases of sudden ventricular fibrillation and that personnel will be trained in the method. Speed and precision in the technic are important.

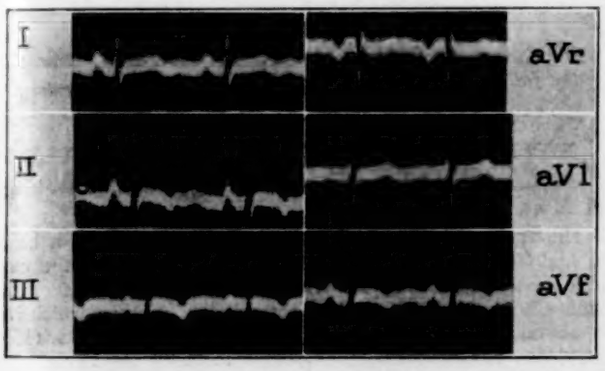


Fig. 1.—Electrocardiogram before operation, showing inverted T wave in leads II and III.

REPORT OF A CASE

R. H., a white boy aged 14, was admitted to Dr. Claude Beck's service of this hospital for sternal resection because of a severe congenital funnel chest. Growth and development had been normal and the only symptom was dyspnea on effort, gradually increasing for the previous two years. Physical examination showed a boy, large for his years, in whom the only abnormality noted was limited to the severe degree of "funnel chest" with slight displacement of the heart toward the left.

Laboratory work revealed: specific gravity of the urine, 1.032; hemoglobin, 15 Gm.; red blood cells, 4,970,000, and white blood cells, 6,400. The electrocardiogram showed inversion of T in leads II and III (fig. 1). Roentgenograms of the chest demonstrated the heart to be somewhat displaced toward the left, and special lateral mediastinal views showed the sternum depressed in its greatest depth to within 1 inch (2.54 cm.) of the dorsal vertebrae. Circulation times and venous pressures were normal, but vital capacity was reduced by 30 per cent.

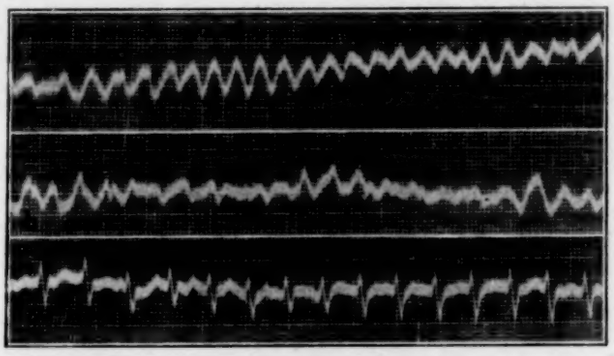


Fig. 2.—(*a*) First recorded electrocardiogram at operation showing coarse ventricular fibrillation. (*b*) Electrocardiogram taken immediately before first shock applied to heart. Ventricular fibrillation is still present. (*c*) Electrocardiogram recorded following successful defibrillation showing supraventricular tachycardia at a rate of 175.

During the induction of the nitrous oxide and ether anesthesia, on the sixth hospital day, the pulse rate rose to 160 per minute and remained at this level for forty-five minutes. After the administration of 1.6 mg. of lanatoside C the rate returned to 80 per minute, where it remained during most of the two hours required for completion of the operation. There were no other unusual circumstances attending the procedure.

During the closure of the wound in the chest, the pulse suddenly stopped and the blood pressure sounds could not be heard. The patient was apparently dead. The wound was reopened and cardiac massage immediately was initiated, 1 mg. of epinephrine given intravenously and more lanatoside C administered with no visible or responsive effects. The mechanical respirator was attached to the intratracheal tube and cardiac massage continuously given for the next thirty-five minutes, at the end of which time the electrocardiogram (fig. 2*a*) was characteristic of ventricular fibrillation. Another record ten minutes later was recorded just prior to the first electric shock applied directly to the heart (fig. 2*b*). This record, as well as the tracing recorded immediately after the first shock, also showed ventricular fibrillation. Since the first shock was unsuccessful, procaine hydrochloride was injected into the right

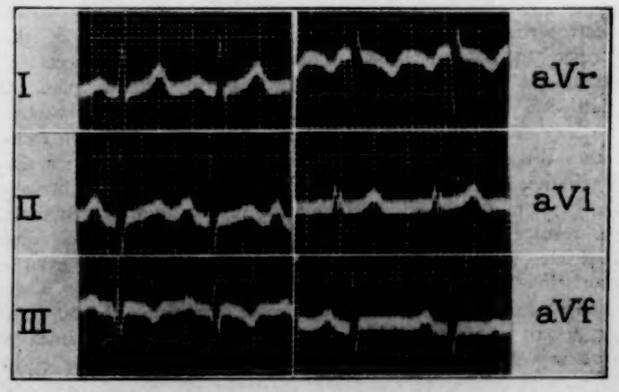


Fig. 3.—Electrocardiogram two months after operation; normal record. T wave in lead II is now upright.

From the Departments of Surgery and Medicine of Western Reserve University School of Medicine and from Lakeside Hospital.

1. Stroud, M. W., and Feil, H. S.: The Terminal Electrocardiogram: Twenty-Five Case Reports and a Review of Literature, to be published.
2. Hooker, D. R.: On Recovery of the Heart in Electric Shock, Am. J. Physiol. **91**: 305, 1929.
3. Wiggers, C. J.: Cardiac Massage Followed by Countershock in Revival of Mammalian Ventricles from Fibrillation Due to Coronary Occlusion, Am. J. Physiol. **116**: 161, 1936; The Physiologic Basis for Cardiac Resuscitation from Ventricular Fibrillation: Method for Serial Defibrillation, Am. Heart J. **20**: 413, 1940.
4. Beck, C. S.: Resuscitation for Cardiac Standstill and Ventricular Fibrillation Occurring During Operation, Am. J. Surg. **54**: 273, 1936.
5. Beck, C. S.: A Resuscitation Squad in Our Hospitals, Bull. Acad. Med. Cleveland **24**: 12, 1939.

auricle, the heart massaged and a second series of shocks given. The heart then was in standstill.

Almost immediately, however, feeble, regular and fairly rapid cardiac contractions were seen, but massage was continued for five more minutes, at which time it was obvious that contractions were coordinated and fairly vigorous, though still fast. An electrocardiogram taken at this time revealed a supraventricular tachycardia at a rate of 175 (fig. 2*c*). From this point on the heart gradually increased in vigor and brachial sounds were heard at 50 mm. of mercury. It is of more than passing interest to note that in spite of the critical condition of the patient and the apparent hopelessness of the situation, at no time was cyanosis or pupillary dilatation present. This demonstrates that massage of the heart had maintained an adequate circulation.

After the coordinated heart beat had been established for twenty minutes, the wound in the chest was closed. Within ten minutes after closure of the wound the intratracheal tube was removed and respirations were resumed. Within one and one-half hours the blood pressure rose to 60 systolic and 40 diastolic, and thereafter it showed a steady, gradual rise to 100 systolic and 70 diastolic. Three hours after defibrillation of the ventricles, the patient responded rationally to questioning, and by eight hours he was fairly alert in spite of his stormy operative course.

The convalescence for the next few days was chiefly characterized by signs of digitalis intoxication and moderately severe azotemia, the nonprotein nitrogen reaching 100 mg. per hundred cubic centimeters on the second postoperative day. Within eight days, however, the patient was much improved, digitalis-induced coupling having disappeared and the blood urea nitrogen having returned to 18 mg. per hundred cubic centimeters.

During the remaining seventeen hospital days, there were no symptoms or signs indicative of injury to the central nervous system, and he was discharged on his thirty-first hospital day. In a follow-up interview three months later, the patient stated that he had considerable increase in exercise tolerance. Electrocardiographic tracings at this time were normal (fig. 3).

COMMENT

The cause contributing to the onset of ventricular fibrillation in this patient is unknown, but this type of rhythm in short paroxysms has been noted before as occurring during surgical procedures.[6] The total duration of the arrhythmia likewise cannot be accurately stated. To the operator (C. S. B.), however, by inspection of the feeble heart directly, ventricular fibrillation was noted at the reopening of the wound. Ventricular fibrillation was confirmed by the first electrocardiogram and persisted until defibrillation thirty-five minutes later.

The problems offered by this case illustrate several important principles in resuscitation technic. Since cardiac arrhythmias cannot often be diagnosed by inspection alone, easy access to an electrocardiograph is necessary. Precise knowledge of the cardiac mechanism is of utmost importance if successful restoration of a normal rhythm is to be intelligently planned.

In 1936 Wiggers demonstrated, and Beck has reemphasized, the importance of proper cardiac massage in defibrillation technics. Wiggers found that failure to recover from ventricular fibrillation depended not so much on the inability to defibrillate the heart as on the incapacity of the myocardium subsequently to resume vigorous beating. Apparently, the fibrillating ventricles, deprived of their coronary blood supply for even a short time, lose their capacity for normal contraction and when defibrillated respond with only feeble, frustrated beats. He suggested, therefore, that cardiac massage which sustains coronary flow be started as soon as possible after the onset of fibrillation and be continued until the electrodes are ready for application to the heart.

The final recovery in this case can be ascribed as much to the effective cardiac massage which prevented general anoxia before defibrillation as to the technic involved in eventual restoration of the heart to a normal rhythm.

Although the central nervous system and heart were spared any detectable damage, the kidneys received a fairly severe temporary ischemic injury during the period of low blood pressure. Presumably this was the lower nephron type of renal lesion following shock, about which much has been written in recent years.

It is of considerable importance to appreciate that serious renal damage from ischemia may result from long periods of grossly inadequate cardiac output such as occurs in ventricular fibrillation. Therefore, all necessary measures should be undertaken in the immediate postfibrillation period to sustain an adequate level of blood pressure and an optimum amount of fluid for renal function. During the course of the emergency, this patient's blood pressure was low enough for a long enough period to impair renal function, but was high enough to prevent irreversible renal failure.

6. Feil, H. S., and Rossman, P.: Electrocardiographic Observations in Cardiac Surgery, Ann. Int. Med. **13**: 402, 1939.

SUMMARY

The case of a healthy boy is presented in which ventricular fibrillation developed during a thoracic surgical procedure and was present in all probability during the one hour and ten minutes when manual massage of the heart was necessary to maintain life. For thirty-five minutes of this time electrocardiographic tracings showed the presence of ventricular fibrillation. By electric shock, applied directly to the exposed heart, ventricular fibrillation was abolished and supraventricular rhythm was restored. The patient made a complete recovery without detectable neurologic or cardiac damage.

Council on Physical Medicine

The Council on Physical Medicine has authorized publication of the following report: HOWARD A. CARTER, *Secretary.*

RAYTHEON MICROTHERM ACCEPTABLE

Manufacturer: Raytheon Manufacturing Company, Waltham 54, Mass.

The Raytheon Microtherm Model CMD 4 generates a beam of high frequency radiofrequency energy (radar) for the purpose of locally raising the temperature of soft tissues of the human body. It is housed in a portable box, or case, which can be set on a table. The over-all size is 39 by 24 by 16 cm. (15⅓ by 9½ by 6½ inches), and the weight including the 10 cm. cup-shaped director is 16 Kg., or 36 pounds.

Much interest is attached to this device, inasmuch as the frequencies used in it had been little understood until they were intensively studied for military purposes during World War II. Only in the past year have critical studies on human subjects been published. They show that radiations of this frequency range do not have harmful effects differing qualitatively from the harmful effects of an excess of diathermy or ordinary heat.

The wavelength of this radiation is approximately 12.2 cm. (2,450 megacycles). Among radio engineers it is known as radar, and it has some of the characteristics of light in that it is apparently propagated in straight lines and can be reflected, refracted and absorbed. Its physiologic effects in some respects resemble those of diathermy but in others resemble those of the radiant energy from infrared lamps. Its therapeutic effects are simply those of the heat liberated in the tissues.

The following statements are based on evidence submitted by the manufacturer. At 2,450 megacycles (12.2 cm.) the absorption of radiofrequency energy in water at 38 C. is of the order of seven thousand times the absorption at the frequency of 27 megacycles (11 meters), now commonly used for short wave diathermy. On passing the 2,450 megacycle radiation into distilled water at 40 C., at a depth of 6 cm. the absorption amounts to 87 per cent. Directed into lean horsemeat, the 2,450 megacycle radiation produces temperature gradients little different from those produced by 27 megacycles. At a meat-fat junction the rises in temperature are always above those observed in an all meat medium. The rises in temperature generated in meat underlying a fat layer equal or exceed those to be observed in an all meat sample. In an all fat medium increases in temperature as high as two times those in a lean medium may be

observed. When bone underlies lean meat at a depth of less than 1 cm., the tissue is heated substantially more than if the bone were not present. Lack of adequate volume of tissue to dissipate heat by conduction and reflection of energy from the bone or point of dielectric differential are factors in the results. When bone underlies lean meat at a depth of more than 1 cm., the temperature gradient in the tissue approximates that with no bone present. At 1 cm. matching conditions are such as to produce lower than expected surface and meat temperatures. While the gradient of temperature increase in bone is definitely less favorable than that in meat, some increases in bone temperature can be realized with 2,450 megacycle energy. The exceedingly low dielectric constant of animal bone marrow prevents absorption of any measurable amount of energy, with the result that little or no increase in temperature is shown.

It is realized that because of the circulatory system temperature differences in the body will be far less than those in dead tissue. It is claimed for the Microtherm that with regard to beneficial selective heating in cases in which selective heating is due to difference of dielectric constant the frequency of 2,450 megacycles will be more effective than the 27 megacycles now in common use. Because microwaves in the assigned frequency band have a wavelength of 12.2 cm., or less than 5 inches, and reflect with little or no loss from highly conductive surfaces such as metal, they can be controlled, concentrated and directed as required for therapeutic purposes.

The firm states that the construction of the apparatus is such that there is no danger to the patient from electrical arcing. While the patient need never touch the external type of directors, contact can be made by either the patient or the operator during operation with complete safety. By the use of spaced directors it is possible to monitor skin conditions constantly during treatment.

Raytheon Microtherm, Model CMD 4.

The Microtherm with a single self supported director, which can be beamed and oriented in the manner of a spotlight, provides ease in application.

The Microtherm has been designed to operate in the frequency band 2,400 to 2,500 megacycles, which was recently assigned by the Federal Communications Commission for unlicensed use for medical, industrial and scientific purposes. The manufacturing tolerances and the operating stability of the RK 5609 magnetron, as used in the Microtherm, are such that the emitted signal will always be within the assigned band.

A clinical investigator performed a series of experiments on human volunteers and measured the temperatures attained within the muscles of the thigh close to the femur. He reported that temperatures attained locally ranged from 39.8 to 40.6 C. (103.5 to 105.1 F.). While the local temperatures rose to these figures, the oral temperatures on the average rose only by 0.05 of a degree Centigrade.

In spite of these substantial rises of temperature in the deeper structures, the overlying skin showed only a minimal erythema, and in 1 instance, a blister resulted. In the words of the investigator, "it would appear that although there is practically no erythema of the skin, the skin will burn under too intensive treatment. Written another way, it appears that a patient may be burned with far less than the usual discomfort of the standard short wave generators, and in addition there is less warning to the physician or technician."

The investigator considers it essential that users of the device be cautioned in this regard. In fact, this danger is to be anticipated as a corollary to the highly desirable relation between cutaneous and internal temperatures which permits adequate internal heating without irritation to the normal skin. For a given degree of cutaneous irritation, the rise in temperature produced in the deeper tissue by the microwaves is much greater than that produced by the radiant heat from an infrared lamp.

The Council on Physical Medicine voted to include the Raytheon Microtherm in its list of accepted devices.

Council on Pharmacy and Chemistry

REPORT OF THE COUNCIL

The Council has authorized publication of the following statement which has been submitted to the Council as a progress report from the Therapeutic Trials Committee.

AUSTIN SMITH, M.D., *Secretary.*

A Subcommittee of the Therapeutic Trials Committee has prepared the following report on the status of estrogen and androgen therapy of mammary cancer. Information on the actions of steroids on other types of cancer will be reported as it becomes available. Appended hereto is an outline of a coordinated clinical investigation which the Committee proposes to sponsor, provided competent investigators can be interested in participating. The Committee will assist investigators in applying for grants-in-aid to various foundations or other sources of funds.

WALTON VAN WINKLE JR., M.D.,
Secretary of the Committee.

ESTROGENS AND ANDROGENS IN MAMMARY CANCER

The possible effectiveness of androgens and the estrogens in the treatment of carcinoma of the breast and other malignant disease resulted in a request that the Therapeutic Trials Committee of the Council on Pharmacy and Chemistry arrange for a large scale cooperative clinical investigation of this problem. Certain facts already established by independent investigators are here reviewed.

The necessity for proper selection of cases for steroid hormone therapy and the grave dangers resulting from mismanagement of cases cannot be emphasized too strongly. Further, there is no indication that steroid hormone therapy affords a cure for carcinoma of the breast; it is palliative only. In carefully selected cases it appears that this type of therapy gives symptomatic relief and may possibly prolong the life expectancy in some individuals.

The role of castration in cancer of the breast has been the subject of numerous investigations. However, the early literature on treatment of cancer of the breast with steroid hormones is not abundant. For the most part each of the earliest reports presents data on 1 to 3 cases; the authors are in general uncritical. The effect of castration on carcinoma of the prostate gland is now well known, following the pioneering work of Charles Huggins.[1] The use of estrogens with or without castration in such cases has resulted in varying degrees of success. The data as presented by the authors are difficult to evaluate. Vest and Frazier[2] have attempted to find the common denominator in these reports. From their report, an increased survival rate prevails in treated cases. Equal in importance to the effects on the extension of life are the symptomatic response, the relief from pain, the gain in appetite and weight and the renewed vigor of the patient.

The current interest in treatment of cancer of the breast with sex hormones stems from reports of investigators here and abroad. The effects of androgen therapy have been presented in comprehensive reports by Adair and his associates of Memorial Hospital, New York.[3] A series of 120 cases of inoperable cancer of the breast, treated with diethylstilbestrol, was reported by a group of English investigators in 1944.[4] A group of more than 150 patients with advanced cancer of the breast treated

1. Huggins, C., and Hodges, C. V.: Cancer Research **1**: 293, 1941.
2. Vest, S. A., and Frazier, T. H.: J. Urol. **56**: 97, 1946.
3. Adair, F. E., and Herrmann, J. B.: Ann. Surg. **123**: 1023, 1946. Herrmann, J. B., and Adair, F. E.: J. Clin. Endocrinol. **6**: 769, 1946. Adair, F. E.: Surg. Gynec. & Obst. **84**: 719, 1947. Herrmann, J. B.; Adair, F. E., and Woodward, H. G.: Surgery **22**: 101, 1947; Arch. Surg. **54**: 1, 1947.
4. Report of Section on Radiology: Royal Society of Medicine, Brit. M. J. **2**: 20, 1944. Symposium: Discussion on Advanced Cases of Carcinoma of the Breast Treated by Stilbestrol, Proc. Roy. Soc. Med. **37**: 731, 1944. Haddow, A.; Watkinson, J., and Patterson, E.: Brit. M. J. **2**: 393, 1944.

with estrogens has been followed by Nathanson of the Massachusetts General Hospital.[5] Although the data have not been reported in detail, indications for the use of estrogens, based on observations in this series, are presented in this report.

SUMMARY OF OBSERVATIONS TO DATE

A provisional statement may be made as to the present status of treatment of mammary carcinoma with androgens or with synthetic estrogens derived almost entirely from the experience of Adair and his group, of Nathanson and of English investigators.

The treatment under discussion is palliative and not curative; radical surgery with or without roentgen radiation is the only procedure recommended for curable lesions. Careful selection of patients whose disease has progressed too far to be amenable to operation is required before hormone treatment.

Androgen Therapy.—For patients with metastatic lesions to bone, regardless of the age of the patient, androgen offers promise. Adair uses testosterone propionate by injection. The dose used at present is 100 mg. given three times a week for ten weeks, followed by a maintenance dose of 60 mg. of methyl testosterone a day for ten weeks. The effects of low dosage have not been definitely determined.

Symptomatic response comes within two or three weeks and is comparable to that seen in cases of prostatic carcinoma after castration. Relief from pain, increased appetite, gain in weight, ability to sleep without narcotics and a renewed interest in life are observed in successfully treated patients.

Roentgenologic studies disclose a decided change in the osseous lesions after such therapy. An increased density of bone may indicate a beneficial effect on such lesions, with deposition of new bone in the area. Sometimes, however, there is evidence of an increase in the osseous metastases even though the patient is definitely improved symptomatically.

Beneficial effects are seldom observed on the primary disease or soft tissue metastases in older women who receive testosterone. Intensive testosterone therapy in premenopausal women may lead to a so-called chemical or medical castration, resulting in changes in soft tissue as well as in osseous metastases akin to those observed after surgical or radiation castration.

As an evidence of repair and regeneration of bone, the alkaline phosphatase goes up from its normal level of 3 to 5 units per hundred cubic centimeters to, at times, as high as 15 to 17 units. An alkaline phosphatase level of 25 to 50 units frequently suggests damage to the liver or hepatic metastases.

With the high dosages of testosterone used, definite masculinizing effects are noted, especially in the younger patients. There is frequently a disturbing increase in sexual libido, which is helped by sedatives and topical applications. At times the serum calcium will be high at the outset of androgen therapy. If there is clinical improvement after such treatment the level may return to normal. Caution should be exercised in using testosterone in women with a high serum calcium determination. If, during treatment with testosterone, the calcium level rises, treatment must be discontinued at once.

The duration of relief obtained by the ten week period of treatment is variable. Recurrences ensue, and further treatment may be given safely. Studies are greatly needed on the effects of a maintenance dose after the intensive treatment.

This Subcommittee is not now prepared to discuss the mode of action of this drug in arresting the speed of the lesion.

Testosterone propionate appears to be useful chiefly in arresting the progress of osseous lesions of cancer of the breast in some cases, although as pointed out there may be progression in spite of symptomatic improvement.

Estrogen Therapy.—Certain criteria for selection of patients with inoperable carcinoma of the breast for estrogen therapy are definite; others, less distinct. In general the criteria are different from those for androgen therapy. Favorable effects are confined to soft tissue manifestations of the disease in older women. The contraindications to estrogen therapy are imperative, and are dealt with in the section on warnings.

Definite regressions following estrogen treatment have been noted in the primary tumor, soft tissue recurrences, lymph node and pulmonary metastases. Conclusive evidence regarding a favorable influence on skeletal metastases has not been obtained to date. A definite improvement in the general physical condition of the patient may be seen. In these cases a sense of well-being returns, hemopoiesis appears more active, appetite increases and a gain in weight is observed. Pain from osseous metatases is sometimes relieved.

These favorable responses appear to be transitory, for recrudescence of the disease in a comparatively short period is the rule, even though some patients have had relatively long periods of remission. Moreover, there is considerable variation in the responses among individual patients. These beneficial effects have not been consistently observed, and unfavorable changes may occur. Observations by the English workers and by Nathanson indicate that the most suitable patients for estrogen therapy are about 60 years of age and over. Neither apparent changes nor suggestive detrimental influences have been observed in younger women. According to present observations, estrogens *should not* be given to premenopausal women. Some of these have shown what appeared to be definite acceleration of the disease.

More detailed studies of the tissue are needed, but in some instances the disease apparently becomes encapsulated by a fibrous tunic.

The agent most extensively tried was diethylstilbestrol administered orally in doses of 5 to 20 mg. a day (10 to 15 mg.). There are indications that certain other estrogens, both synthetic and natural, may be just as effective. Undesirable side effects are loss of appetite, nausea, vomiting, cutaneous eruptions, diarrhea and edema. Care must be exercised particularly in elderly persons in whom cardiac decompensation may be precipitated as a result of the retention of fluid.

More information is needed, particularly as to optimum dosage, length of treatment and the effects of retreatment after recurrences. The indications must also be better defined.

At present, estrogens appear to be useful as palliative agents in older women with soft tissue manifestations of advanced carcinoma of the breast.

WARNINGS

Because of the inherent dangers of indiscriminate steroid therapy of mammary cancer, the experimental nature of this therapy must be emphasized. The Subcommittee believes it imperative to reemphasize the known dangers and to point out that others may be discovered in the investigations now contemplated. The known dangers are reiterated:

Androgen Therapy.—In cases of metastatic bone lesions with high blood calcium levels (such, for example, as 14 mg. per hundred cubic centimeters or above) certain patients have been made extremely ill, having nausea, vomiting and prostration, by the instigation of testosterone therapy. It is necessary to determine the blood calcium level on each patient before commencing testosterone therapy and, if the calcium level is high, during the course of treatment.

Estrogen Therapy.—Any patient who still menstruates or who has menstruated within a five year period should definitely not receive estrogen therapy, as it accelerates the rate of growth of the carcinoma.

Large therapeutic doses of estrogen eventually produce uterine bleeding; it then becomes necessary, temporarily at least, to diminish the dosage.

Androgen and Estrogen Therapy.—Androgen and estrogen therapy should never take the place of radical surgery in operable mammary carcinoma.

PROPOSALS

The problem at present before the Therapeutic Trials Committee has two facets. The immediate need relates to the widespread desire of the clinicians to treat inoperable cancer of the breast with some endocrine preparation. The long range need is the more important one of research on the natural history of this disease and the relation of hormones to its growth or involution.

5. Nathanson, I. T. Cancer Research **6**: 484, 1946; J. Clin. Investigation **25**: 930, 1946.

The immediate therapeutic needs may be satisfied by enlisting the cooperation of a large number of clinics whose directors will agree to conform to certain specified standard procedures.

The following firms, listed alphabetically, have offered to supply substantial quantities of testosterone for this investigation:

Ciba Pharmaceutical Products, Inc.
Charles E. Frosst & Co. (Canada).
Rare Chemicals, Inc.
Roche-Organon, Inc.
Schering Corporation.

The names of other firms which are considering participation in this project will be announced at a later date.

Two groups of consultants are being appointed, who will have the privilege of review of cases under treatment by the participating clinics. A group of consulting pathologists composed of Dr. Howard T. Karsner, Cleveland, Dr. Fred Stewart, New York, and Dr. Shields Warren, Boston, will classify the original tumor tissue and evaluate any changes therein which might be a result of hormone therapy. All pathologic material will be deposited with the American Registry of Pathology.

Similar arrangements are being made for the review and evaluation of x-ray films of patients taken before, during or after specific treatment.

The collaborating investigators will be permitted to determine the particular phase of the problem they wish to study, and the data obtained will be reviewed by the Subcommittee. Fundamental research on the many implications of this problem will be made more intensive than the program for clinical therapy. Full details regarding the proposed study may be obtained from the Secretary of the Therapeutic Trials Committee.

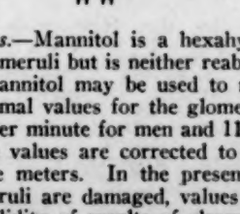
SUBCOMMITTEE ON STEROIDS AND CANCER.
IRA T. NATHANSON, M.D., Chairman.
FRANK E. ADAIR, M.D.
WILLARD M. ALLEN, M.D.
EARL T. ENGLE, PH.D.

NEW AND NONOFFICIAL REMEDIES

The following additional articles have been accepted as conforming to the rules of the Council on Pharmacy and Chemistry of the American Medical Association for admission to New and Nonofficial Remedies. A copy of the rules on which the Council bases its action will be sent on application.

AUSTIN SMITH, M.D., *Secretary.*

MANNITOL. — 1,2,3,4,5,6-hexahydroxyhexane. — A hexahydroxy alcohol related to mannose.—$C_6H_{14}O_6$.—M. W. 182.17. The structural formula of mannitol may be represented as follows:



Actions and Uses.—Mannitol is a hexahydric alcohol which is filtered at the glomeruli but is neither reabsorbed nor excreted by the tubules. Mannitol may be used to measure glomerular filtration. The normal values for the glomerular filtration rate are 131 ± 21.5 cc. per minute for men and 117 ± 15.6 per minute for women. These values are corrected to a standard surface area of 1.73 square meters. In the presence of renal disease in which the glomeruli are damaged, values lower than normal are found. The validity of results of clearances with mannitol is open to question by some observers.

Dosage.—Mannitol is administered as a sterile 25 per cent solution by venoclysis. The concentration of mannitol is determined in milligrams per cubic centimeter of blood plasma. The urine formed during a definite period is collected, and the mannitol excreted is calculated in milligrams per minute. The glomerular filtration rate in cubic centimeters per minute is calculated from these two values and is equivalent to the number of cubic centimeters that must have been filtered at the glomerulus to supply the amount of mannitol excreted in the urine per minute.

Tests and Standards.—

Mannitol occurs as a white, crystalline substance possessing a sweet taste. It melts at 166 to 168 C. It is freely soluble in water and slightly soluble in alcohol. The refractive index of a 10 per cent solution at 25 C. is 1.3380.

Add 5 drops of a saturated aqueous solution of mannitol to 1 cc. of ferric chloride solution. Add 5 drops of distilled water to a second tube containing 1 cc. of ferric chloride solution. Add 5 drops of 20 per cent sodium hydroxide solution to each tube: a reddish precipitate of ferric hydroxide forms in the tube with no mannitol, and a yellow precipitate forms in the tubes containing mannitol.

Shake the tubes vigorously: a clear solution appears in the tube containing mannitol, but the precipitate persists in the other tube.

Add 5 more drops of the sodium hydroxide solution: no precipitation occurs in the tube containing mannitol, but a further precipitation of ferric hydroxide takes place in the control.

Add 0.5 cc. of acetyl chloride to about 0.1 Gm. of mannitol. Warm gently until the solution becomes cloudy. Cool the solution and allow it to stand for a few minutes. Filter off the precipitate. Recrystallize from ether: the recrystallized product melts at 126 C.

Dry about 0.50 Gm. of mannitol, accurately weighed, at 110 C. for four hours: the loss in weight does not exceed 0.30 per cent.

Ash about 0.50 Gm. of mannitol, accurately weighed: the residue does not exceed 0.05 per cent.

To 5 cc. of alkaline cupric citrate solution (Benedict's solution) add 1 cc. of a saturated aqueous solution of mannitol. Heat for five minutes in a boiling water bath: no more than a very slight precipitate occurs.

Dissolve 0.1 Gm. of mannitol, accurately weighed, in distilled water and dilute to 100 cc. in a volumetric flask. Transfer 4 cc. of the solution to a 250 cc. Erlenmeyer flask. Add 50 cc. of potassium periodate reagent prepared by mixing 40 cc. of 5 per cent sulfuric acid (29 cc. sulfuric acid per liter) with 60 cc. of 0.1 per cent potassium periodate (1 Gm. of potassium periodate per liter plus 3 to 5 drops of sulfuric acid). Heat the solution on the steam bath for fifteen minutes. Cool to room temperature. Add 5 cc. of chloroform and 1 Gm. of potassium iodide. Allow to stand for five minutes and then titrate the solution with fiftieth-normal sodium thiosulfate. Carry out a blank determination in a similar manner using water in place of the mannitol solution. The difference in titration values of the blank and sample is due to the change in periodate concentration due to oxidation of the mannitol. Each cubic centimeter of fiftieth-normal sodium thiosulfate used for the oxidation of mannitol is equivalent to 0.003709 Gm. of mannitol: the mannitol content is not less than 98 per cent or more than 102 per cent.

MANNITOL SOLUTION: Determine the density of the mannitol solution by means of a pyknometer. Transfer the mannitol solution from the pyknometer to a volumetric flask of a size calculated to yield a concentration of about 4 mg. of mannitol per 10 cc.

Transfer sufficient solution to contain 4 mg. of mannitol to a 250 cc. Erlenmeyer flask. Add 50 cc. of potassium periodate reagent prepared by mixing 40 cc. of 5 per cent sulfuric acid (29 cc. sulfuric acid per liter) with 60 cc. of 0.1 per cent potassium periodate (1 Gm. of potassium periodate per liter plus 3 to 5 drops of sulfuric acid). Heat the solution on the steam bath for fifteen minutes. Cool to room temperature. Add 5 cc. of chloroform and 1 Gm. of potassium iodide. Allow to stand for five minutes, and then titrate the solution with fiftieth-normal sodium thiosulfate. Carry out a blank determination in a similar manner using water in place of the mannitol solution. The difference in titration values of the blank and sample is due to the change in periodate concentration due to oxidation of the mannitol. Each cubic centimeter of fiftieth-normal sodium thiosulfate used for the oxidation of mannitol is equivalent to 0.003709 Gm. of mannitol: the mannitol content is not less than 97 per cent or more than 103 per cent.

SHARP & DOHME, INC., GLENOLDEN, PA.

Sterile Solution of Mannitol: 50 cc. ampuls. Each ampul contains 12.5 Gm. mannitol.

AMINOPHYLLINE (See New and Nonofficial Remedies, 1947, p. 305).

The following dosage forms have been accepted:

AMERICAN PHARMACEUTICAL CO., INC., NEW YORK

Aminophylline Suppositories: 0.5 Gm. in a water miscible base consisting of polyoxyalkylene sorbitol monolaurate; polyoxyalkylene stearate, and polyethylene glycols.

COLE CHEMICAL COMPANY, ST. LOUIS

Tablets Aminophylline: 0.1 Gm.

Solution Aminophylline: Ampuls 0.5 Gm. in 2 cc. with benzyl alcohol 1.5 per cent.

STREPTOMYCIN (See New and Nonofficial Remedies, 1947, p. 150).

The following dosage form has been accepted:

THE UPJOHN COMPANY, KALAMAZOO, MICH.

Streptomycin Sulfate: 30 cc. vials containing streptomycin sulfate equivalent in activity to 1 Gm. of streptomycin base (one million units).

DIETHYLSTILBESTROL (See New and Nonofficial Remedies, 1947, p. 347).

The following dosage form has been accepted:

THE UPJOHN COMPANY, KALAMAZOO, MICH.

Sterile Solution Diethylstilbestrol (in Cotton Seed Oil): 0.5 mg. per cubic centimeter, 20 cc. vials.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

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SATURDAY, DECEMBER 13, 1947

CLEVELAND INTERIM SESSION

Elsewhere in this issue appear the programs of the various meetings to be held in Cleveland, January 5 to 8 inclusive. The exceptional features scheduled for this meeting make it a high spot in the program for general practitioners which is now being elaborated by the various agencies of the American Medical Association. During the two days preceding the session in Cleveland, some of the official Councils and committees of the American Medical Association will be holding sessions —notably the Board of Trustees, the Council on Medical Education and Hospitals and the Council on Industrial Health.

The Scientific and Technical Exhibits will function during all four days of meetings. Clinics for detection of cancer will be operated by several of the Cleveland hospitals, but patients will be examined in the Scientific Exhibit instead of in the hospital. Physicians who attend the session will be given an opportunity to serve as subjects in a complete examination for the detection of cancer. The President of the American Medical Association, Dr. Edward L. Bortz, and several members of the Board of Trustees have volunteered as subjects in these examinations. Other clinics include dermatology, with patients demonstrated by members of the Cleveland Dermatological Society; diabetes, with clinics under the auspices of a committee which includes members of the George Baker Clinic of Boston and the American Diabetes Association under the chairmanship of Dr. Howard F. Root, Boston, and a clinic on the conservation of hearing conducted by otolaryngologists. Also included are exhibits on rehabilitation, in which physically handicapped persons will be used as demonstrations. A motion picture program is a special feature of the Scientific Exhibit.

During the first two days, January 5 and 6, the House of Delegates of the American Medical Association will hold its Interim Session. Discussion of many problems of importance to the public and the medical profession, include pending legislation on medical care, on the National Science Foundation, the progress of activities under the Hill-Burton Act and the problems of the general practitioner.

The Council on Industrial Health has arranged a two day program devoted largely to industrial health, with special reference to the part played by the general practitioner in this work. A banquet will be held on Monday night, January 5, under the auspices of the Council on Industrial Health. New and significant developments in industrial health will be presented. A preliminary program of the Council on Industrial Health was published in THE JOURNAL for November 29; the final program appears in this issue.

On the evening of January 6 a sports roundup and placement demonstration will be held, showing the residual ability of physically handicapped persons, their actual placement in industry, and their proficieny in various sports.

On Tuesday evening, January 6, a special conference of the secretaries of county medical societies will be held and will be devoted primarily to the problems of general practice and of the general practitioner. The executive committee in charge of the arrangements includes Drs. A. M. Mitchell, Terre Haute, Ind., chairman; B. O. Mork Jr., Worthington, Minn.; D. B. Wiley, Utica, Mich., and F. J. Holroyd, Princeton, W. Va.

The program of the assembly for general practitioners will begin on Wednesday morning, January 7, and continue through January 8. As indicated by the program which appears in this issue of THE JOURNAL, the presentations are devoted to subjects of current interest; each session is supplemented by a panel discussion in which leaders of the medical profession will participate and in which general practitioners will be given full opportunity to direct questions to the panel.

On Wednesday night, January 7, the program will include addresses by the Honorable Oscar Ewing, Federal Security Administrator, who in addition to his address will present the medal for exceptional service to the general practitioner selected for this award. Hundreds of nominations have been received, and in many instances entire state medical societies joined to nominate a general practitioner for the award. This award is as carefully chosen as the Distinguished Service Medal of the Association. Biographies of the leading three candidates will be presented to the House of Delegates on Monday morning, January 5, so that they may choose one of the three general practitioners passed on by the executive committee of the Section on General Practice and by the Board of Trustees. An

address will also be made by the Honorable Clinton P. Anderson, Secretary of Agriculture, who will speak on nutrition as a world problem.

The Interim Session has been designed primarily to appeal to the general practitioner. It offers opportunity for intensive graduate education such as is not available at any other similar meeting in the United States.

MORE ABOUT CANCER

Douglass Poteat, executive vice president of the American Cancer Society, speaking at the annual meeting of the society, stated that cancer is killing about 188,000 Americans this year. Thus cancer is second only to conditions affecting the heart and circulation as the nation's most lethal disease. Cancer touches statistically 1 in 2 homes in America, kills 1 in 8 of all people. President Truman, recently urging expansion of scientific research programs, has declared that "in this expansion federal funds should supplement and not replace funds spent by industry and nonprofit institutions." The report by John R. Steelman, chairman of the President's Scientific Research Board, stated that less than 10 per cent of all public and private scientific research funds were for health purposes; he urged that the government should not adopt any policies which might have the effect of discouraging or driving foundations, private philanthropy and private health organizations from the field. Federal support for research should supplement, not replace, other funds. This, according to Poteat, is but another expression of the universal conviction that private health organizations are indispensable. The American Cancer Society met its goal of $12,000,000 this year. Poteat says further that the government this year appropriated for cancer control and research $14,000,000 to the National Cancer Institute and an additional $5,000,000 to the Atomic Energy Commission. Compared with these sums are congressional appropriations of $19,000,000 for research and control of plant and animal diseases and $3,000,000 for the control of white pine blister rust in 1946.

The financial outlook in the cancer control program for 1947 is encouraging. Harry A. Murphy, national campaign director, reported that $12,136,000 had been raised during the fiscal year which ended last August 31. The goal was $12,000,000. The splendid total, he said, not only reflects the generous nature of the American people but glorifies the workers who raised the money. Through personal contacts during the fund-raising campaign, volunteer workers disseminated directly much information about cancer. The enormousness of the cancer problem, Murphy emphasized, requires the support and the work of every person regardless of age, sex or profession. The implications of the cancer problem, while primarily medical, nevertheless have a strong relationship to the economic, humanitarian and sociologic phases of the lives of every one.

Robert B. Thorpe, director of lay education, American Cancer Society, pointed out that the current cancer mortality could be cut from one third to one half if early symptoms were given medical attention. "Ignorance, fear and misguided economy are costing a great many lives. In surgery, x-ray and radiation the means are at hand to save these lives. But it is up to the patient himself to suspect cancer from early symptoms and to report to his doctor." About 45 million pieces of literature prepared by the American Cancer Society during the last year carried the seven danger signs of cancer, namely: sores that do not heal; painless lumps or thickenings; irregular bleeding or discharge; progressive change in the color or size of a wart or mole; persistent indigestion; persistent hoarseness or unexplained coughs, and changes in normal bowel habits. Some surveys indicate that slowly, on an increase of about 1 per cent a year, patients are learning to report cancer symptoms early; but even in the more enlightened centers, about 7 of 10 persons with cancer see their physicians too late. All the participants in the annual meeting have agreed that the control of cancer is essentially a program of volunteers.

C. C. Little, director of the Jackson Memorial Laboratory, Bar Harbor, Maine, thought that "fear of state medicine" and "criticism of existing facilities, rather than constructive efforts to improve them," were faults of the medical profession that interfered with the efforts of the American Cancer Society. The greatest guarantee against state-controlled medicine, in his opinion, is the rapid growth and development of the privately supported campaigns such as that of the American Cancer Society. Parenthetically, state-controlled medicine might be considered a menacing cancer of the body politic. Little indicated also the impatience of lay groups in the rate of progress in the treatment and cure of cancer. Much of this impatience is based on an erroneous idea that money and organization will directly solve the problem as they did the problem of atomic energy.

Dr. Catherine McFarlane reported ten years of experience in the control of cancer of the uterus, a project supported by the Committee on Research of the American Medical Association. A suggestion is made, as a result of this study, that one examination per year will suffice for single nulliparous women and perhaps for married women who have not borne children. Two examinations will be needed for parous women or for any of the group who present inflammatory lesions of the cervix.

Current Comment

SPECIAL SERIES ON CANCER

In this issue of THE JOURNAL appears the first of a series of articles on cancer. The series was developed as a joint project of the American Medical Association and the American Cancer Society under the sponsorship of an editorial committee consisting of Drs. Charles A. Doan, Columbus, Ohio; Ludvig Hektoen, Chicago; James R. Miller, Hartford, Conn.; Eugene P. Pendergrass, Philadelphia, and Allen O. Whipple, New York, in cooperation with Dr. Morris Fishbein, Editor of THE JOURNAL and Drs. A. W. Oughterson and Charles S. Cameron of the American Cancer Society. When completed, this series of articles will be published in book form with additional illustrations, some of them in color. Arrangements have been made with the W. B. Saunders Company to publish the book. Among the articles already scheduled in this series are:

Brunschwig, Alexander: Cancer of the Liver, Bile Ducts and Pancreas

Coller, Frederick A., and Berry, Robert L.: Cancer of the Colon

Craver, Lloyd F.: Lymphomas and Leukemias: The Value of Early Diagnosis and Treatment

Daland, Ernest M.: Palliative Treatment of the Patient with Advanced Cancer

Dargeon, Harold W.: Cancer in Children from Birth to Fourteen Years of Age

Haagensen, C. D.: Carcinoma of the Breast

Huggins, Charles, and Johnson, Maxwell A.: Cancer of the Bladder and Prostate

Michelson, Henry E.: Cancer of the Skin

Miller, Norman F.: Carcinoma of the Uterus, Ovary and Tube

Morton, John J.: The Cancer Problem

Naffziger, Howard C., and Boldrey, Edwin B.: Cancer of the Nervous System

Phemister, Dallas B.: Cancer of the Bone and Joint

Sweet, Richard H.: Cancer of the Esophagus and Stomach

Additional articles will cover such subjects as:

Cahill, George F.: Cancer of Kidneys, Adrenal Glands and Testicles

Churchill, Edward D.: Cancer of Lung and Pleura

Martin, Hayes: Cancer of Head and Neck

All authorities are agreed that early diagnosis is essential to successful treatment of cancer with the methods now available. The series of articles is designed particularly to aid the general practitioner in the early diagnosis of cancer and an understanding of correct procedure. In many instances surgery, the use of radium or roentgen rays, or other technics now available require special facilities which are not generally available. The articles are intended also to guide the general practitioner in the selection of methods of treatment.

PRACTICING PHYSICIANS FOR RURAL AREAS

Various states are endeavoring to attract young physicians to rural areas. The Committee on Rural Medical Service of the American Medical Association is summarizing what has been done. In Kentucky a scholarship fund was created in a campaign sponsored by the Kentucky State Medical Association and the University of Louisville School of Medicine. Within a few months $150,000 was subscribed. From this fund loans for tuition are made to students who pledge themselves to practice after graduation in Kentucky's rural areas. The Indiana State Medical Association offers six $500 scholarships annually to students who agree to practice in counties which the committee considers to be most urgently in need of medical service. The association bears the principal cost of these scholarships, although its scholarship committee is authorized to accept donations from other sources. While these scholarships are available only to residents of Indiana, the students are not compelled to attend school in Indiana. Alabama's program provides for one $400 scholarship for each of the sixty-seven counties in the state, and a student must first be admitted to the medical College of Alabama before receiving a scholarship. The aim is to stimulate graduates to return to their local rural communities but no commitment is required by the recipient concerning the location of his subsequent practice of medicine. The Medical Society of the State of Wisconsin is sponsoring a bill which would give financial aid to physicians in rural areas. Under this plan doctors would be appointed as special medical officers and would receive up to $1,800 a year for part time public health service. A number of Wisconsin's graduates go into rural practice, as a result of a preceptor plan whereby students spend one fourth of their senior year with general practitioners in the state. The house of representatives of South Carolina last May approved the establishment of fourteen scholarships at the state medical college. The recipient must agree to practice in a rural community for a time equivalent to that for which he receives the scholarship. Failure to carry out the agreement would require the recipient to repay the value of the scholarship, which is fixed at $550 a year. The Mississippi state legislature appropriated $300,000 in 1946 for similar scholarships, with a maximum loan to students of $1,250. In Mississippi since this program was inaugurated more than two hundred and fifty applications and inquiries have been received. The University of Virginia Medical School has ten scholarships for students who will practice in rural areas and they are all now filled. These scholarships amount to $550 each and the student after graduation must practice in a rural area for as long as he held a scholarship. The Committee on Rural Medical Service of the American Medical Association is continuing to receive additional reports and will present the summary to the House of Delegates at the Interim Session in Cleveland in January.

THE INTERIM SESSION

AMERICAN MEDICAL ASSOCIATION
CLEVELAND, JAN. 5-8, 1948

OFFICIAL CALL

TO THE OFFICERS, FELLOWS AND MEMBERS OF THE AMERICAN MEDICAL ASSOCIATION

The interim session of the American Medical Association will be held in Cleveland, Jan. 5-8, 1948.

The House of Delegates will convene at 10 a. m. Monday, January 5. In the House the representation of the various constituent associations for 1947, 1948 and 1949 is as follows:

Alabama	2	Maryland	2
Arizona	1	Massachusetts	6
Arkansas	2	Michigan	5
California	9	Minnesota	4
Colorado	2	Mississippi	1
Connecticut	3	Missouri	4
Delaware	1	Montana	1
District of Columbia	2	Nebraska	2
Florida	2	Nevada	1
Georgia	3	New Hampshire	1
Idaho	1	New Jersey	5
Illinois	9	New Mexico	1
Indiana	4	New York	20
Iowa	3	North Carolina	3
Kansas	2	North Dakota	1
Kentucky	2	Ohio	7
Louisiana	2	Oklahoma	2
Maine	1	Oregon	2
		Pennsylvania	10
		Rhode Island	1
		South Carolina	1
		South Dakota	1
		Tennessee	2
		Texas	5
		Utah	1
		Vermont	1
		Virginia	2
		Washington	2
		West Virginia	2
		Wisconsin	3
		Wyoming	1
		Alaska	1
		Hawaii	1
		Isthmian Canal Zone	1
		Puerto Rico	1

The scientific sections of the American Medical Association, the Medical Corps of the Army, the Medical Corps of the Navy and the Public Health Service are entitled to one delegate each.

The Scientific Meetings will open Wednesday, January 7, starting at 10 a. m. and will continue throughout the morning and afternoon of that day and Thursday, January 8 The gold medal for an outstanding general practitioner will be presented on Wednesday evening, January 7.

The Registration Bureau, which will be located at the Main Entrance (Lakeside Avenue) of the Cleveland Public Auditorium, will be open from 8:30 a. m. until 5:30 p. m. Monday, Tuesday and Wednesday, January 5, 6 and 7, and from 8:30 a. m. to 3:30 p. m. Thursday, January 8.

EDWARD L. BORTZ, President.
ROY W. FOUTS, Speaker, House of Delegates.
GEORGE F. LULL, Secretary.

OFFICERS OF THE AMERICAN MEDICAL ASSOCIATION 1947—1948

PRESIDENT—Edward L. Bortz, Philadelphia.

PRESIDENT-ELECT — R. L. Sensenich, South Bend, Ind.

VICE-PRESIDENT — Thomas A. McGoldrick, Brooklyn.

SECRETARY AND GENERAL MANAGER—George F. Lull, Chicago.

TREASURER—J. J. Moore, Chicago.

SPEAKER, HOUSE OF DELEGATES—R. W. Fouts, Omaha.

VICE SPEAKER, HOUSE OF DELEGATES — F. F. Borzell, Philadelphia.

EDITOR—Morris Fishbein, Chicago.

BUSINESS MANAGER—Thomas R. Gardiner, Chicago.

BOARD OF TRUSTEES — William F. Braasch, Rochester, Minn., 1948; Ernest E. Irons, Secretary, Chicago, 1948; Louis H. Bauer, Hempstead, N. Y., 1949; E. L. Henderson, Chairman, Louisville, Ky., 1949; John H. Fitzgibbon, Portland, Ore., 1950; James R. Miller, Hartford, Conn., 1950; W. M. Johnson, Winston-Salem, N. C., 1948; Dwight H. Murray, Napa, Calif., 1952; E. J. McCormick, Toledo, Ohio, 1952.

JUDICIAL COUNCIL—John H. O'Shea, Spokane, Wash., 1948; Edward R. Cunniffe, Chairman, New York, 1949; Louis A. Buie, Rochester, Minn., 1950; Walter F. Donaldson, Pittsburgh, 1951; Lloyd Noland, Fairfield, Ala., 1952; George F. Lull, Chicago, Secretary.

COUNCIL ON MEDICAL EDUCATION AND HOSPITALS — Harvey B. Stone, Baltimore, 1948; Reginald Fitz, Boston, 1949; Russell L. Haden, Cleveland, 1950; W. S. Middleton, Madison, Wis., 1951; H. G. Weiskotten, Chairman, Syracuse, N. Y., 1952; Victor Johnson, Rochester, Minn., 1953; John H. Musser,† New Orleans, 1954; Donald G. Anderson, Secretary, Chicago.

† Deceased.

COUNCIL ON SCIENTIFIC ASSEMBLY—L. B. Jackson, San Antonio, Texas, 1948; Charles H. Phifer, Chicago, 1949; Henry R. Viets, Chairman, Boston, 1950; L. W. Larson, Bismarck, N. D., 1951; Stanley P. Reimann, Philadelphia, 1952; and ex officio the President-Elect, the Editor and the Secretary of the Association.

COUNCIL ON MEDICAL SERVICE — Alfred W. Adson, Rochester, Minn., 1948; Walter B. Martin, Norfolk, Va., 1948; Elmer Hess, Erie, Pa., 1949; Thomas A. McGoldrick, Brooklyn, 1949; Jesse D. Hamer, Phoenix, Ariz., 1950; James R. McVay, Chairman, Kansas City, Mo., 1950; H. H. Shoulders, Nashville, Tenn.; Edward L. Bortz, Philadelphia; E. J. McCormick, Toledo, Ohio; George F. Lull, Chicago; Thomas A. Hendricks, Secretary, Chicago.

COUNCIL ON PHARMACY AND CHEMISTRY (Standing Committee of Board of Trustees)—E. D. Churchill, Boston, 1948; C. S. Keefer, Boston, 1948; C. Guy Lane, Boston, 1948; Stuart Mudd, Philadelphia, 1948; James P. Leake, Washington, D. C., 1949; D. P. Barr, New York, 1949; W. B. Wood Jr., St. Louis, 1949; M. Fishbein, Chicago, 1950; G. W. McCoy, New Orleans, 1950; P. H. Long, Baltimore, 1950; E. M. Nelson, Washington, D. C., 1950; Torald Sollmann, Chairman, Cleveland, 1951; Isaac Starr, Philadelphia, 1951; R. F. Loeb, New York, 1951; E. M. K. Geiling, Chicago, 1952; S. W. Clausen, Rochester, N. Y., 1952; Paul R. Cannon, Chicago, 1952; Austin E. Smith, Secretary, Chicago.

COUNCIL ON PHYSICAL MEDICINE (Standing Committee of Board of Trustees)—A. C. Ivy, Chicago, 1948; Frank R. Ober, Boston, 1948; Frank D. Dickson, Kansas City, Mo., 1948; A. U. Desjardins, Rochester, Minn., 1949; H. B. Williams, New York, 1949; Frank H. Krusen, Rochester, Minn., 1949; Anthony C. Cipollaro, New York, 1950; M. A. Bowie, Bryn Mawr, Pa., 1950; G. M. Piersol, Philadelphia, 1950; W. E. Garry, Nashville, Tenn., 1951; W. W. Coblentz, Washington, D. C., 1951; John S. Coulter, Chairman, Chicago, 1951; Derrick Vail, Chicago, 1951; W. E. Grove, Milwaukee, 1951; Morris Fishbein, ex officio, Chicago; Howard A. Carter, Secretary, Chicago.

COUNCIL ON FOODS AND NUTRITION (Standing Committee of Board of Trustees)—Lydia J. Roberts, Chicago, 1948; George R. Cowgill, New Haven, Conn., 1948; C. S. Ladd, Washington, D. C., 1949; John B. Youmans, Nashville, Tenn., 1949; Harold C. Stuart, Boston, 1950; Morris Fishbein, Chicago, 1950; R. M. Wilder, Rochester, Minn., 1951; Howard B. Lewis, Ann Arbor, Mich., 1951; J. S. McLester, Chairman, Birmingham, Ala., 1951; Philip C. Jeans, Iowa City, 1952; C. A. Elvehjem, Madison, Wis., 1952; James R. Wilson, Secretary, Chicago.

COUNCIL ON INDUSTRIAL HEALTH (Standing Committee of Board of Trustees) — Harvey Bartle, Philadelphia, 1948; W. A. Sawyer, Rochester, N. Y., 1948; James S. Simmons, Boston, 1948; Rutherford T. Johnstone, Los Angeles, 1949; A. J. Lanza, New York, 1949; C. D. Selby, Detroit, 1949; Warren F. Draper, Washington, D. C., 1950; Raymond Hussey, Detroit, 1950; Henry H. Kessler, Newark, N. J., 1950; L. D. Bristol, Augusta, Maine, 1951; Paul B. Magnuson, Chicago, 1951; C. M. Peterson, Secretary, Chicago.

COUNCIL ON NATIONAL EMERGENCY MEDICAL SERVICE (Standing Committee of Board of Trustees) — James C. Sargent, Chairman, Milwaukee; Richard L. Meiling, Secretary, Columbus, Ohio; W. McK. Craig, Rochester, Minn.; Harold S. Diehl, Minneapolis; Perrin H. Long, Baltimore; Harold C. Lueth, Omaha; Stafford Warren, Los Angeles; and ex officio Edward L. Bortz, Philadelphia; George F. Lull, Chicago.

COMMITTEE ON SCIENTIFIC EXHIBIT — E. J. McCormick, Toledo, Ohio; Dwight H. Murray, Chairman, Napa, Calif.; James R. Miller, Hartford, Conn.; Thomas G. Hull, Director, Chicago. Advisory Committee — Howard F. Root, Boston; Paul J. Hanzlik, San Francisco; Ludvig Hektoen, Chicago; Urban Maes, New Orleans; Max M. Peet, Ann Arbor, Mich.; James P. Leake, Washington, D. C.

REGISTRATION

The Bureau of Registration will be located in the Main Entrance (Lakeside Avenue) of the Cleveland Public Auditorium. An information bureau will be operated in connection with the Bureau of Registration.

Who May Register

Only Fellows, Affiliate, Associate and Honorary Fellows and Invited Guests may register and take part in the work of the Scientific Assembly. Fellows of the Scientific Assembly are those who have, on the prescribed form, applied for Fellowship, subscribed to THE JOURNAL, and paid their 1947 Fellowship dues. Fellowship cards are sent to all Fellows after payment of annual dues and these cards should be presented at the registration window. Any who have not received cards for 1947 should secure them at once by writing to the American Medical Association, 535 North Dearborn Street, Chicago 10.

Members in Good Standing Eligible to Apply for Fellowship in the Association

Members in good standing in the American Medical Association are those members of component county medical societies and of constituent state and territorial medical associations whose names are officially reported for enrolment to the Secretary of the American Medical Association by the secretaries of the constituent medical associations. All members in good standing may apply for Fellowship in the Scientific Assembly and are urged to qualify as Fellows before leaving home in order that pocket cards may be secured and brought to Cleveland so that registration can be more easily and more promptly effected.

Application forms may be had on request.

Those subscribers to THE JOURNAL who have not received pocket cards for 1947 should write to the American Medical Association in order to obtain application blanks and information as to further requirements.

Register Early

Fellows living in Cleveland, as well as all other Fellows who are in Cleveland on Monday and Tuesday, should register as early as possible.

The names and local addresses of those who register will be included in the issue of the *Daily Bulletin* appearing the next day, and this will enable visiting physicians to find friends who have registered.

Suggestions That Will Facilitate Registration

Fellows should fill out completely the spaces on both sections of the front of the registration card. Physicians who desire to qualify as Fellows should fill out completely the spaces on both sections of the front of the registration card and sign the application on the back. These cards will be found on the tables.

Entries on the registration card should be written plainly, or printed, as the cards are given to the printer to use as "copy" for the *Daily Bulletin*, which appears on Tuesday, Wednesday and Thursday mornings during the week of the session.

Fellows who have their pocket cards with them can be registered with little or no delay. They should present the filled out registration card, together with the pocket card, at one of the windows marked "Registration by Pocket Card." There the clerk will compare the two cards, stamp the pocket card and return it and supply the Fellow with a badge and a copy of the official program.

As previously stated, it will assist in registering if those who desire to qualify as Fellows will file their applications and qualify as Fellows by writing directly to the American Medical Association, 535 North Dearborn Street, Chicago 10.

It will be possible for members of the organization to qualify as Fellows at Cleveland. In order to do this, applicants for Fellowship will be required to fill out both sections of the front of the registration card and to sign the formal application that is printed on the reverse side of the card. It is suggested that those members who apply for Fellowship at Cleveland bring with them their state membership cards for the year 1947. The state membership card should be presented along with the filled in registration card at the window in the booth marked "Applicants for Fellowship and Invited Guests."

As already stated, registration can be effected more easily and more promptly if members will qualify as Fellows before leaving home.

Registration for General Officers and Delegates at the Hotel Statler

General Officers of the American Medical Association and members of the House of Delegates may register for the Scientific Assembly outside the Euclid Ballroom of the Hotel Statler. This arrangement is made for the convenience of members of the House of Delegates, which will convene on Monday morning at 10 o'clock in the Euclid Ballroom of the Hotel Statler. Delegates are requested to register for the Scientific Assembly before presenting credentials to the Reference Committee on Credentials of the House of Delegates. Registration of delegates for the Scientific Assembly will begin at 8 o'clock Monday morning, January 5, and delegates are urged to register early so that all members of the House of Delegates may be seated in time for the opening session of the House.

TRANSPORTATION

It is suggested that those Fellows who contemplate traveling to Cleveland to attend the interim session of the Association secure information concerning railroad and airplane travel directly from their local ticket agents, who are in a position to give them information regarding train or plane schedules and fares.

CLEVELAND HOTELS

It is suggested that if hotel reservations have not yet been secured by Fellows who expect to attend the Cleveland session, such Fellows write directly to DR. DAVID CHAMBERS, SUBCOMMITTEE ON HOTELS, 111 TERMINAL TOWER, CLEVELAND 13.

MEETING PLACES

HOUSE OF DELEGATES: Euclid Ballroom, Hotel Statler, Euclid Avenue and East Twelfth Street.

SCIENTIFIC MEETINGS: Music Hall, Arena Floor, Cleveland Public Auditorium.

PRESENTATION OF GENERAL PRACTITIONER'S MEDAL: Music Hall, Arena Floor, Cleveland Public Auditorium.

GENERAL HEADQUARTERS, REGISTRATION BUREAU, SCIENTIFIC EXHIBIT, TECHNICAL EXHIBITS AND INFORMATION BUREAU: Cleveland Public Auditorium.

The Cleveland Public Auditorium is located on Lakeside Avenue at East Sixth Street.

LOCAL COMMITTEE ON ARRANGEMENTS

CLYDE L. CUMMER, Chairman

Subcommittee on Hotels

DAVID CHAMBERS, Chairman

A. K. CIESLAK
W. B. CLEVELAND
P. F. GULMI
P. J. SCHILDT

Subcommittee on Information and Registration

R. F. PARKER, Chairman

FAY A. LEFEVRE
E. F. KIEGER
C. D. WALTZ
MR. H. VAN Y. CALDWELL

Subcommittee on Scientific Exhibit

C. F. MCKAHNN, Chairman

SPENCER BRADEN
A. C. ERNSTENE
LOUIS W. LADD
R. S. MCGINNIS
JOHN E. RAUSCHKOLB

HOUSE OF DELEGATES

The House of Delegates will meet at 10 a. m., Monday, Jan. 5, 1948, in the Euclid Ballroom of the Hotel Statler, Euclid Avenue and East Twelfth Street.

The Reference Committee on Credentials will meet in the lobby outside the Euclid Ballroom at 8:30 a. m., Monday, Jan. 5, 1948. Credentials should be presented to the Reference Committee on Credentials as early as possible, so that the official roll of the House may be made up and so that the House of Delegates may organize promptly and proceed with its business. The Reference Committee on Credentials will also meet preceding each subsequent meeting of the House of Delegates.

Each delegate should present properly executed credentials signed by the president and the secretary of the constituent association or by the chairman and the secretary of the section he represents. Alternates presenting credentials should see that the delegates whose places they are to take have signed the alternate authorization.

Each delegate, before registering with the Reference Committee on Credentials, should register for the Scientific Assembly at a booth located in the lobby leading to the desk of the Reference Committee on Credentials.

Rooms have been provided for the use of committees of the House of Delegates. Reference committees are urged to have their meetings in these rooms and to announce the time of their meetings, so that any who are interested in matters referred may be able to appear before the committees.

Typists will be at the service of the members of the House of Delegates for preparing official reports, resolutions and motions.

There should be eight copies of all reports of committees, resolutions, written motions, etc., presented in the House, one copy for preservation in the minutes, six to go to the committee to which the matter may be referred and one to be used as "copy" for the Proceedings. The eight copies must be handed to the Secretary at the time the matter is presented. Typists in attendance will gladly make these copies on request.

Meeting Rooms of Reference Committees in the Hotel Statler

Reference Committee on—

Amendments to the Constitution and By-Laws	Parlor C, Second Floor
Hygiene and Public Health	Parlor D, Second Floor
Legislation and Public Relations	Tavern Room, Second Floor
Medical Education	Parlor E, Second Floor
Miscellaneous Business	Parlor H, Second Floor
Reports of Board of Trustees and Secretary	Parlor F, Second Floor
Reports of Officers	Parlor G, Second Floor
Rules and Order of Business	Parlor B, Second Floor
Sections and Section Work	Parlor A, Second Floor
Executive Session	Parlor L, Second Floor
Special	Parlor M and Room 341

MEMBERS OF HOUSE OF DELEGATES, INTERIM SESSION, 1948

The following is a list of the members of the House of Delegates whose names have been reported in time to be included:

ALABAMA—*2*
- Lloyd Noland....Fairfield
- A. A. Walker....Birmingham

ARIZONA—1
- Jesse D. Hamer....Phoenix

ARKANSAS—*2*
- D. A. Rhinehart....Little Rock
- L. J. Kosminsky....Texarkana

CALIFORNIA—9
- H. Gordon MacLean....Oakland
- E. Vincent Askey....Los Angeles
- John W. Cline....San Francisco
- Donald Cass....Los Angeles
- Ralph B. Eusden....Long Beach
- Robertson Ward....San Francisco
- Samuel J. McClendon....San Diego
- Lowell S. Goin....Los Angeles
- John W. Green....Vallejo

COLORADO—*2*
- William H. Halley....Denver
- George A. Unfug....Pueblo

CONNECTICUT—3
- Joseph H. Howard....Bridgeport
- Creighton Barker....New Haven
- Thomas P. Murdock....Meriden

DELAWARE—1
- James Beebe....Lewes

DISTRICT OF COLUMBIA—*2*
- Herbert P. Ramsey....Washington
- C. B. Conklin....Washington

FLORIDA—*2*
- Homer Lee Pearson Jr....Miami
- Louis M. Orr II....Orlando

GEORGIA—3
- Olin H. Weaver....Macon
- Allen H. Bunce....Atlanta
- Benjamin H. Minchew....Waycross

IDAHO—1
- Hoyt B. Woolley....Idaho Falls

ILLINOIS—9
- Rollo K. Packard....Chicago
- Charles H. Phifer....Chicago
- G. Henry Mundt....Chicago
- Robert H. Hayes....Chicago
- Fred H. Muller....Chicago
- Edwin S. Hamilton....Kankakee
- Willis I. Lewis....Herrin
- Mather Pfeiffenberger....Alton
- E. H. Weld....Rockford

INDIANA—4
H. G. Hamer.....Indianapolis
A. S. Giordano.....South Bend
William M. Cockrum.....Evansville
F. S. Crockett.....Lafayette

IOWA—3
Thomas F. Thornton.....Waterloo
George Braunlich.....Davenport
Gerald V. Caughlan.....Council Bluffs

KANSAS—2
Forrest L. Loveland.....Topeka
Philip W. Morgan.....Emporia

KENTUCKY—2
J. B. Lukins.....Louisville
Clark Bailey.....Harlan

LOUISIANA—2
Val H. Fuchs.....New Orleans
James Q. Graves.....Monroe

MAINE—1
Thomas A. Foster.....Portland

MARYLAND—2
.....
Thomas S. Cullen.....Baltimore

MASSACHUSETTS—6
Charles E. Mongan.....Somerville
Patrick J. Sullivan.....Dalton
Walter G. Phippen.....Salem
David D. Scannell.....Boston
Charles J. Kickham.....Brookline
L. S. McKittrick.....Boston

MICHIGAN—5
Wyman D. Barrett.....Detroit
T. K. Gruber.....Eloise
Claude R. Keyport.....Grayling
L. G. Christian.....Lansing
William A. Hyland.....Grand Rapids

MINNESOTA—4
W. A. Coventry.....Duluth
A. W. Adson.....Rochester
E. W. Hansen.....Minneapolis
Francis J. Savage.....St. Paul

MISSISSIPPI—1
James P. Wall.....Jackson

MISSOURI—4
Arthur R. McComas.....Sturgeon
Warren L. Allee.....Eldon
Robert E. Schlueter.....St. Louis
James R. McVay.....Kansas City

MONTANA—1
Raymond F. Peterson.....Butte

NEBRASKA—2
Joseph D. McCarthy.....Omaha
Karl S. J. Hohlen.....Lincoln

NEVADA—1
Roland W. Stahr.....Reno

NEW HAMPSHIRE—1
Deering G. Smith.....Nashua

NEW JERSEY—5
J. Wallace Hurff.....Newark
Thomas K. Lewis.....Camden
Hilton S. Read.....Atlantic City
Joseph F. Londrigan.....Hoboken
William F. Costello.....Dover

NEW MEXICO—1
.....

NEW YORK—20
Walter P. Anderton.....New York
Herbert H. Bauckus.....Buffalo
Albert F. R. Andresen.....Brooklyn
Thomas M. Brennan.....Brooklyn
James R. Reuling.....Bayside
Floyd S. Winslow.....Rochester
Ralph T. B. Todd.....Tarrytown
O. W. H. Mitchell.....Syracuse
Edward P. Flood.....New York
Albert A. Gartner.....Buffalo
Thomas A. McGoldrick.....Brooklyn
John J. Masterson.....Brooklyn
Stephen R. Monteith.....Nyack
J. Stanley Kenney.....New York
George W. Kosmak.....New York
Thomas M. D'Angelo.....Jackson Heights
Harry Aranow.....New York
Louis A. Van Kleeck.....Manhasset
S. L. Smith.....Poughkeepsie
Walter W. Mott.....White Plains

NORTH CAROLINA—3
Hamilton W. McKay.....Charlotte
R. D. McMillan.....Red Springs
C. F. Strosnider.....Goldsboro

NORTH DAKOTA—1
John H. Moore.....Grand Forks

OHIO—7
Edgar P. McNamee.....Cleveland
George A. Woodhouse.....Pleasant Hill
Carl A. Lincke.....Carrollton
William M. Skipp.....Youngstown
Frank M. Wiseley.....Findlay
L. Howard Schriver.....Cincinnati
Clifford C. Sherburne.....Columbus

OKLAHOMA—2
Charles R. Rountree.....Oklahoma City
James Stevenson.....Tulsa

OREGON—2
Raymond M. McKeown.....Coos Bay
Edward H. McLean.....Oregon City

PENNSYLVANIA—10
William Bates.....Philadelphia
Francis F. Borzell.....Philadelphia
Walter F. Donaldson.....Pittsburgh
Charles L. Shafer.....Kingston
William L. Estes Jr.....Bethlehem
James L. Whitehill.....Rochester
George S. Klump.....Williamsport
Elmer Hess.....Erie
James Z. Appel.....Lancaster
E. R. Samuel.....Mount Carmel

RHODE ISLAND—1
Herman A. Lawson.....Providence

SOUTH CAROLINA—1
Hugh P. Smith.....Greenville

SOUTH DAKOTA—1
William Duncan.....Webster

TENNESSEE—2
Edward Thomas Newell.....Chattanooga
H. B. Everett.....Memphis

TEXAS—5
Holman Taylor.....Fort Worth
F. J. L. Blasingame.....Wharton
Howard R. Dudgeon.....Waco
B. E. Pickett Sr.....Carrizo Springs
E. H. Cary.....Dallas

UTAH—1
James P. Kerby.....Salt Lake City

VERMONT—1
Theodore H. Harwood.....Burlington

VIRGINIA—2
J. Morrison Hutcheson.....Richmond
Henry B. Mulholland.....Charlottesville

WASHINGTON—2
Raymond L. Zech.....Seattle
Donald G. Corbett.....Spokane

WEST VIRGINIA—2
Walter E. Vest.....Huntington
Ivan Fawcett.....Wheeling

WISCONSIN—3
Stephen E. Gavin.....Fond du Lac
James C. Sargent.....Milwaukee
William D. Stovall.....Madison

WYOMING—1
.....

ALASKA—1
.....

HAWAII—1
Forrest J. Pinkerton.....Honolulu

ISTHMIAN CANAL ZONE—1
.....

PUERTO RICO—1
.....

DELEGATES FOR SECTIONS

INTERNAL MEDICINE
Charles T. Stone.....Galveston, Texas

SURGERY, GENERAL AND ABDOMINAL
Grover C. Penberthy.....Detroit

OBSTETRICS AND GYNECOLOGY
Jean Paul Pratt.....Detroit

OPHTHALMOLOGY
Arthur J. Bedell.....Albany, N. Y.

LARYNGOLOGY, OTOLOGY AND RHINOLOGY
Burt R. Shurly.....Detroit

PEDIATRICS
.....

EXPERIMENTAL MEDICINE AND THERAPEUTICS
Edgar V. Allen.....Rochester, Minn.

PATHOLOGY AND PHYSIOLOGY
L. W. Larson.....Bismarck, N. D.

NERVOUS AND MENTAL DISEASES
Hans H. F. Reese.....Madison, Wis.

DERMATOLOGY AND SYPHILOLOGY
C. F. Lehmann.....San Antonio, Texas

PREVENTIVE AND INDUSTRIAL MEDICINE AND PUBLIC HEALTH
Stanley H. Osborn.....Hartford, Conn.

UROLOGY
Roy B. Henline.....New York

ORTHOPEDIC SURGERY
J. Archer O'Reilly.....St. Louis

GASTRO-ENTEROLOGY AND PROCTOLOGY
Louis A. Buie.....Rochester, Minn.

RADIOLOGY
B. R. Kirklin.....Rochester, Minn.

ANESTHESIOLOGY
Henry S. Ruth.....Haverford, Pa.

GENERAL PRACTICE OF MEDICINE
Howard E. Griffin.....Graham, Texas

GOVERNMENT SERVICES

United States Army.....Frank L. Cole
United States Navy.....Morton D. Willcutts
United States Public Health Service.....James A. Crabtree

Order of Business

(Subject to change by action of the House of Delegates)

MONDAY, JANUARY 5, 10 A. M.

1. Call to Order by the Speaker.
2. Preliminary Report of the Reference Committee on Credentials.
3. Roll Call.
4. Selection of Recipient of General Practitioner's Award.
5. Presentation, Correction and Adoption of Minutes of the Annual Session held in June, 1947.
6. Speaker's Remarks and Confirmation of Appointments to Reference Committees.
7. Remarks of President.
8. Introduction of President-Elect.
9. Reports of Officers.
10. Reports of Committees.
11. Unfinished Business.
12. New Business.

TUESDAY, JANUARY 6, 1:15 P. M.*

1. Supplementary Report of Reference Committee on Credentials.
2. Reading and Adoption of Minutes.
3. New Business.
4. Executive Session.
5. Reports of Reference Committees and Other Unfinished Business.

House of Delegates Dinner

There will be a dinner for members of the House of Delegates at 7 p. m., Monday, Jan. 5, 1948, at Hotel Cleveland.

Report of Committee to Expedite Work of House of Delegates

The meeting of the Committee to Expedite the Work of the House of Delegates met in the Board of Trustees' room of the building of the American Medical Association, Chicago, Friday, Sept. 19, 1947. There were present Dr. James R. Reuling, Chairman; Drs. Walter E. Vest, John W. Cline, James C. Sargent and Lloyd Noland, members, and Drs. Roy W. Fouts, F. F. Borzell, George F. Lull and Morris Fishbein, ex officio members of the committee.

Each member of the committee individually had done a great amount of preliminary work prior to the meeting. There is presented herewith the results of the committee's deliberations with recommendations where action seems necessary. From the many factors considered, it is deemed advisable to break this report down into three main headings: (1) administrative matters; (2) standing rules, and (3) matters indicating a necessary change in the Constitution or By-Laws.

ADMINISTRATIVE MATTERS

Under administrative matters many of the items discussed have already been taken care of. From a questionnaire that was sent to the various constituent associations it was determined that some of the state societies were not electing delegates as provided for in the By-Laws for a two year period. They were, on the other hand, electing delegates for a one year period. The Secretary and General Manager has already taken care of this matter.

There was considerable discussion regarding the amount of time wasted in reference committee meetings due to the lack of secretarial assistance and the even greater delay in preparing reports of the reference committees for submission to the House of Delegates. It was agreed that the Secretary would arrange

* If the House adopts the report of its Committee to Expedite Work of House of Delegates there will be no Tuesday morning meeting. If it does not, but decides to follow usual procedure, the meeting will start at 9:30 a. m.

to have a pool of stenographers who will be available for meetings of reference committees so that reports can be prepared promptly for submission to the House.

Forms.—Standard forms for the introduction of resolutions were recommended. These will be prepared by the Secretary and furnished for the use of the various members of the House. Another standard form for the use of reference committees in preparing their reports to the House was also approved. These will be prepared by the Secretary for use in the House of Delegates.

It was stressed that there was a great amount of time lost in the seating of delegates by the Reference Committee on Credentials. The Secretary will in the future assign clerks to assist the Reference Committee on Credentials in its work.

Reference Committees.—It was pointed out that members of the House of Delegates have difficulty at times in determining (*a*) when a reference committee is going to meet; (*b*) where a reference committee is going to meet, and (*c*) who the chairman and members of each reference committee are.

It was the consensus that this information should be furnished to all members of the House.

STANDING RULES

In order that new delegates might familiarize themselves with the standing rules of the House and old delegates might refresh their minds, it is recommended that the delegates read all standing rules published in the back of the Constitution and By-Laws, which is regularly published in the Handbook.

Reference Committees.—The committee discussed the pros and cons of the advisability of having lists of chairmen and members of reference committees published in advance of the session. It was suggested that some of the delegates appointed as chairmen or members on a committee might not attend the session. However, as this number would probably be very small, it was considered not to be a valid objection. It was also brought out that the publishing of the lists of chairmen and members of reference committees might subject members of some committees to a deluge of opinions from the membership at large. However, since any member of the American Medical Association in good standing has the right to appear before a reference committee, it was decided that any slight inconvenience which might occur would be far outweighed by the broad democratic principles involved. Therefore the committee recommends that it be a standing rule that the Speaker of the House appoint reference committees two months in advance of a session and that the list of appointments be published one month in advance of the session.

It was brought out that there is frequently a great deal of time wasted getting started at the first meeting of the House of Delegates due to confusion and delay in seating delegates. It is proposed that a standing rule be adopted that the chairman of the Reference Committee on Credentials divide his committee into two groups, half of the members of the committee to examine and seat the delegates from the states beginning with letters *A* to *M* inclusive, the other half to examine and seat the delegates from states beginning with letters *N* to *Z*. If any contest arises, such delegate or delegates are to step aside until all members of the reference committee may pass on the validity of the delegate or delegates in question. This will speed up the registration so that all members of the House can be seated by 10 a. m.

It is recommended that there shall be no address by the President-Elect.

A standing rule is recommended that the Reference Committee on Executive Session shall consider all matters referred to it in executive session and that it shall make its report to the House of Delegates only when the House is in executive session.

There was unanimous opinion of the committee that much time of the House is wasted by speakers or addresses before the House. It was suggested that such guests as the Board of Trustees indicate might be given a chance to speak at a luncheon or dinner meeting. However, since this matter would be a trustee decision, the committee feels that it can only make the suggestion. It is recommended that distinguished guests shall not be presented for addresses before the House of Delegates.

It is recommended that a standing rule be adopted to the effect that there shall be no standing or conversation in the back of the room when the House of Delegates is in session. Such a rule will empower the sergeant-at-arms to enforce quiet.

In accordance with the resolution passed at the Atlantic City session in June 1947, it is recommended that the standing rule concerning the number of copies of resolutions which are introduced into the House shall be changed to require eight copies.

It is recommended that whenever practical resolutions to be submitted to the House by a constituent association or by a delegate be sent to the central office of the American Medical Association for publication in THE JOURNAL in advance of the meeting of the House of Delegates.

The committee recommends that a standing rule be adopted that all new business and resolutions shall be introduced at the first meeting of the House of Delegates (Monday meeting). However, new business may be introduced at the Tuesday afternoon meeting (or on Wednesday, if a Wednesday meeting is held) by a two-thirds majority vote of the House. On Thursday no new business shall be introduced without unanimous consent (except new business arising in a Section).

The committee was of the opinion that there should be two separate orders of business, one for the annual session, and one for the interim session of the House of Delegates.

In explanation of these two orders of business, the following comments are offered. Attention is called to the fact that the reports of the Board of Trustees, councils and committees are requested to be taken out of the annual session and transferred to the interim session. This will save a great deal of time at the annual session. The auditor's report is to be submitted at the annual session. It was the opinion of the committee that the Monday meeting of the House should recess at 3 p. m. and that the last half hour of this session, that is, from 2:30 to 3 p. m., should be devoted to the executive session for the introduction of resolutions related to internecine and other private affairs of the Association.

It is suggested that the House should not meet on Tuesday morning. This time should be left open for the meetings of reference committees.

The first order of business on Tuesday afternoon following the report of the Reference Committee on Credentials and the adoption of minutes shall be introduction of new business, to be followed by an executive session, which in turn is to be followed by unfinished business such as reports of reference committees and so forth.

Election of officers should be retained as an order of business on Thursday afternoon as it is at the present time. The committee considered the possibility of transferring the election to Wednesday, but this did not seem practical.

The committee recommends that there should be three ballot sheets, each a different color, (1) for the election of officers, (2) for the election of trustees and the place of annual session and (3) for the election of members of councils.

The Speaker will announce that no one is to insert his vote on the ballot until the names of all the nominees for each office have been submitted and that no delegate should write the name of a nominee on his ballot until the names of all the candidates are before the House.

PROPOSED ORDER OF BUSINESS

Annual Sessions

MONDAY, 10 A. M.

1. Call to Order by the Speaker.
2. Preliminary Report of the Reference Committee on Credentials.
3. Selection of Recipient of Distinguished Service Award.
4. Presentation, Correction and Adoption of Minutes of the Interim Session.
5. Speaker's Remarks and Confirmation of Appointments to Reference Committees.
6. Supplementary Remarks of President, if any. (President's Address to be Published in the Handbook.)
7. Introduction of President-Elect. (No Address by President-Elect.)
8. Interim Reports of Board of Trustees and Councils, if any.
9. New Business.
10. Reports of Reference Committees.

2:30 P. M.

Introduction in executive session of resolutions dealing with internecine and other private affairs of the Association.

The House shall recess on Monday at 3 p. m.

(Tuesday morning shall be left open for meetings of reference committees.)

TUESDAY, 1:15 P. M.

1. Supplementary Report of Reference Committee on Credentials.
2. Reading and Adoption of Minutes.
3. New Business.
4. Executive Session.
5. Reports of Reference Committees and Other Unfinished Business.

(Wednesday meetings will be held only subject to the action of the House.)

THURSDAY, 1 P. M.

1. Supplementary Report of Reference Committee on Credentials.
2. Reading and Adoption of Minutes.
3. Supplementary Reports from Board of Trustees and Reference Committees.
4. Election of Officers

(White Ballot):

(*a*) President-Elect.
(*b*) Vice President.
(*c*) Secretary.
(*d*) Treasurer.
(*e*) Speaker, House of Delegates.
(*f*) Vice Speaker, House of Delegates.

(Blue Ballot):

(*g*) Trustees.

5. Selection of Place for Next Annual Session (Also on Blue Ballot).
6. Nominations for Standing Committees by President and Confirmation by House of Delegates; Nominations for Standing Committees by Board of Trustees (Yellow Ballot).
7. Roll Call for Casting Ballots.
8. Election of Honorary, Affiliate and Associate Fellows.
9. Unfinished Business.
10. Adjournment.

Interim Sessions

MONDAY, 10 A. M.

1. Call to Order by the Speaker.
2. Preliminary Report of Reference Committee on Credentials.
3. Selection of Recipient of General Practitioner's Medal.
4. Presentation and Adoption of Minutes of Annual Session.
5. Speaker's Remarks and Confirmation of Appointments to Reference Committees.
6. Supplementary Remarks of President, if any.
7. Introduction of President-Elect.
8. Report of Board of Trustees, including Reports of:
   (*a*) Council on Pharmacy and Chemistry.
   (*b*) Council on Physical Medicine.
   (*c*) Council on Foods and Nutrition.
   (*d*) Council on Industrial Health.
   (*e*) Council on National Emergency Medical Service.
   (*f*) Bureau of Health Education.
   (*g*) Bureau of Investigation.
   (*h*) Bureau of Legal Medicine and Legislation.
   (*i*) Bureau of Medical Economic Research.
   (*j*) Bureau of Exhibits.
   (*k*) Bureau of Industrial and Personnel Relations.
   (*l*) Committee on Rural Medical Service.
   (*m*) Committee on Scientific Research.
   (*n*) Committee on Therapeutic Research.
9. Reports of Standing and Special Committees.
   (1) Judicial Council, Chairman.
   (2) Council on Medical Education and Hospitals, Chairman.
   (3) Council on Scientific Assembly, Chairman.
   (4) Council on Medical Service and Public Relations, Chairman.
   (5) Special Committees.

   (See By-Laws, Chap. II, Sec. 2, p. 9)
10. New Business.
11. Reports of Reference Committees.

2:30 P. M.

Time for introduction in executive session of resolutions dealing with internecine and other private affairs of the Association. Recess for day at 3 p. m.

(Tuesday morning shall be left open for meetings of reference committees.)

TUESDAY, 1:15 P. M.

1. Supplementary Report of Reference Committee on Credentials.
2. Reading and Adoption of Minutes.
3. New Business.
4. Executive Session.
5. Reports of Reference Committees and Other Unfinished Business.

CHANGE IN BY-LAWS

It was determined from the questionnaire which was sent to the constituent state associations that there is no uniformity as to the time a delegate elected from the various states assumes office. This works a hardship on the central office. It frequently does not have the names of delegates in time to print them in the Handbook. The Vice Speaker, Dr. F. F. Borzell, who is also chairman of the Committee to Study Revision of the Constitution and By-Laws, will introduce a recommendation that the committee had to offer, namely, that the delegates elected by the constituent associations shall take office on January 1 of the year next succeeding their election.

EIGHTH ANNUAL CONGRESS ON INDUSTRIAL HEALTH

Sponsored by Council on Industrial Health of American Medical Association

Cleveland Auditorium, Cleveland, Jan. 5-6, 1948

MONDAY, JANUARY 5—10 A. M., BALLROOM

OPENING SESSION

GEORGE SYKES, Cleveland, Presiding

Call to Order.

Report of the Council on Industrial Health.
C. M. PETERSON, Chicago.

Essential Correlations Between Medicine and Industrial Research.
ARTHUR J. VORWALD, Saranac Lake, N. Y.

PANEL DISCUSSION ON HEALTH AND WELFARE IN THE LADIES' GARMENT INDUSTRY

A. J. LANZA, New York, Presiding

History. MAX MEYER, New York.
Present Scope and Procedure. FREDERICK F. UMHEY, New York.
Medical and Health Implications. LEO PRICE, New York.

2 P. M., CLUB ROOM C

CONFERENCE ON ADMINISTRATIVE PRACTICES

H. P. WORSTELL, Columbus, Ohio, Presiding

Plans for Small Plant Medical Services in New York. KENNETH C. PEACOCK, New York.
Experiences in Health Education in Industry. H. M. HARRISON, Toronto, Canada.

PANEL DISCUSSION ON HOW GOOD SHOULD INDUSTRIAL MEDICAL EXAMINATIONS BE

JAMES ROSCOE MILLER, Chicago, Moderator

Participants:
OSCAR A. SANDER, Milwaukee.
GEORGE GEHRMANN, Wilmington, Del.
WILLIAM A. SAWYER, Rochester, N. Y.

2 P. M., CLUB ROOM A

CONFERENCE ON INDUSTRIAL PHYSIOLOGY

ROBERT A. KEHOE, Cincinnati, Presiding

Physiologic Principles in Aviation Medicine. JAN H. TILLISCH, Rochester, Minn.
Physiologic Requirements in Industrial Machine Design. THEODORE F. HATCH, Pittsburgh.
The Physiology of the Bone Marrow in Relation to Industrial Intoxication. LEONARD J. GOLDWATER, New York.

Hotel Cleveland

6:30 P. M.

HOUSE OF DELEGATES DINNER

This dinner is being arranged by the Council on Industrial Health of the American Medical Association, with the joint sponsorship of the Cleveland Chamber of Commerce and the Cleveland Academy of Medicine.

Cleveland Auditorium, Cleveland, Jan. 5-6, 1948

TUESDAY, JANUARY 6—9 TO 10:30 A. M.,

CLUB ROOM B

CONFERENCE ON RESPIRATORY INFECTIONS

AUSTIN SMITH, Chicago, Moderator

Discussion Leaders:
M. V. VELDEE, Bethesda, Md.
ALVIN L. BARACH, New York.

Subjects:
Virus Vaccines—A Review and Evaluation.
Aerosol Therapy in General and Industrial Practice.
General Discussion.

9 A. M., CLUB ROOM A

CONFERENCE ON NUTRITION IN INDUSTRY

JAMES S. McLESTER, Birmingham, Ala., Moderator

Discussion Leaders:
CHARLES C. LUND, Boston.
ROBERT S. GOODHART, New York.

Subjects:
Nutrition in Relation to Healing Processes.
Administration of an Industrial Nutrition Program.
Nutrition and Industrial Toxicology.

11 A. M., CLUB ROOM B

CONFERENCE ON THE OUTLOOK FOR INDUSTRIAL MEDICAL SERVICE

PAUL MAGNUSON, Washington, D. C., Moderator

Participants:
R. L. SENSENICH, South Bend, Ind.
HERMAN G. WEISKOTTEN, Syracuse, N. Y.
JAMES R. McVAY, Kansas City, Mo.

2 P. M., CLUB ROOM B

CONFERENCE ON REHABILITATION

FRANK KRUSEN, Rochester, Minn., Moderator

Discussion Leaders:
HOWARD RUSK, New York.
DONALD COVALT, Washington, D. C.
A. RAY DAWSON, Washington, D. C.
THOMAS B. McKNEELY, Washington, D. C.

Subjects:
The Demands of Daily Living.
Current Research in Disability Evaluation.
Correlating Rehabilitation and Industrial Practice.
General Discussion.

AMPUTATIONS CLINIC

Arranged by HENRY H. KESSLER, Newark, N. J.

2 P. M., CLUB ROOM A

CONFERENCE ON OCCUPATIONAL CANCER

SHIELDS WARREN, Boston, Presiding

Pathologic Aspects. SHIELDS WARREN, Boston.
Chemical Aspects. WILLIAM SALTER, New Haven, Conn.
Clinical Aspects. W. C. HUEPER, New York.
General Discussion.

GRASS ROOTS CONFERENCE

Euclid Ballroom, Hotel Statler

TUESDAY, JAN. 6, 1948, 7:30 P. M.

A. M. MITCHELL, Terre Haute, Ind., Chairman.

7:30 p. m. Registration.

7:45 p. m. Call to Order.
A. M. MITCHELL, Terre Haute, Ind., Chairman.

7:50 p. m. Welcome.
GEORGE F. LULL, Chicago.

8:00 p. m. The General Practitioner: How to Create More of Him for the Future Need of the Country.
CHARLES F. WILKINSON, Ann Arbor, Mich.

9:00 p. m. Upholding the Prestige of the General Practitioner.
WINGATE M. JOHNSON, Winston-Salem, N. C.

10:00 p. m. The General Practitioner and Community Leadership.
FRED STERNAGEL, West Des Moines, Iowa.

SCIENTIFIC MEETING

Music Hall, Arena Floor, Cleveland Public Auditorium

WEDNESDAY, JANUARY 7, FROM 9 TO 10:30 A. M.

CHARLES H. PHIFER, Chicago, Presiding

SYMPOSIUM ON UTERINE HEMORRHAGE

Bleeding Associated With or Related to Antecedent Pregnancy:
(*a*) Causes and Methods of Recognition. DUNCAN E. REID, Boston.

(*b*) Treatment. F. BAYARD CARTER, Durham, N. C.

Bleeding from the Corpus and Fundus Uteri Not Related to Pregnancy, and Bleeding from the Cervix Uteri. RICHARD W. TELINDE, Balimore.

INTERMISSION TO VIEW EXHIBITS—10:30 TO 11 A. M.

11 A. M.

LEONARD W. LARSON, Bismarck, N. D., Presiding

PANEL DISCUSSION ON CARE OF POSTHOSPITALIZED PATIENT WITH CANCER

CHARLES C. LUND, Boston, Moderator

Surgical Care. ALTON OCHSNER, New Orleans.

Medical and Psychiatric Care. WALTER L. PALMER, Chicago.

Roentgenologic Care. EUGENE PENDERGRASS, Philadelphia.

Question and Answer Period.

INTERMISSION FOR LUNCHEON AND TO VIEW EXHIBITS—12:30 TO 1:30 P. M.

1:30 P. M.

STANLEY P. REIMANN, Philadelphia, Presiding

Treatment of the Fat and the Lean. E. H. RYNEARSON, Rochester, Minn.

Carcinoma of the Prostate. C. D. Creevy, Minneapolis.

BCG and Tuberculosis. HERMAN E. HILLEBOE, Albany, N. Y.

INTERMISSION TO VIEW EXHIBITS—3 TO 3:30 P. M.

3:30 P. M.

HENRY R. VIETS, Boston, Presiding

SYMPOSIUM ON THE TREATMENT OF PATHOLOGIC DISTURBANCES OF ADOLESCENCE

Dermatologic Problems. LESTER HOLLANDER, Pittsburgh.

Neurologic and Psychiatric Problems. GEORGE J. MOHR, Chicago.

Endocrinologic Problems: Underweight and Overweight. JOSEPH JOHNSTON, Detroit.

WEDNESDAY, JANUARY 7, AT 8 P. M.

Music.

Invocation.

Remarks by PRESIDENT E. M. BORTZ, Philadelphia.

Introduction of CLINTON P. ANDERSON, Secretary of Agriculture. E. M. BORTZ, Philadelphia.

Problems of World Nutrition.
CLINTON P. ANDERSON, Secretary of Agriculture, Washington, D. C.

Music.

Presentation of General Practitioner's Medal to Physician Elected to Receive the Award.
OSCAR R. EWING, Federal Security Administrator, Washington, D. C.

Acceptance of Award.

Music.

THURSDAY, JANUARY 8, FROM 9 TO 10:30 A. M.

STANLEY P. REIMANN, Philadelphia, Presiding

SYMPOSIUM ON MULTIPLE INJURIES IN AUTOMOBILE ACCIDENTS

Statistics of Automobile Accidents for 1947 Compiled by the National Safety Council. NED H. DEARBORN, Chicago.

Immediate Treatment at Site of Accident. CARL J. POTTHOFF, Washington, D. C.

Injuries of the Head and Back. DONALD MUNRO, Boston.

Internal Injuries. I. S. RAVDIN, Philadelphia.

INTERMISSION TO VIEW EXHIBITS—10:30 TO 11 A. M.

11 A. M.

CHARLES H. PHIFER, Chicago, Presiding

Tumors of the Neck, Their Diagnosis and Surgical Management. FRANK H. LAHEY, Boston.

Recent Advances in Hematology. CARL V. MOORE, St. Louis.

The Chronic Invalid. EDWARD L. BORTZ, Philadelphia.

INTERMISSION FOR LUNCHEON AND TO VIEW EXHIBITS—12:30 TO 1:30 P. M.

1:30 P. M.

LEONARD W. LARSON, Bismarck, N. D., Presiding

PANEL DISCUSSION ON TREATMENT OF THE AMBULATORY AND HOSPITALIZED DIABETIC PATIENT

ELLIOTT P. JOSLIN, Boston, Moderator

The Unknown Diabetic and How to Recognize Him. RUSSELL M. WILDER, Rochester, Minn.

Medical and Surgical Vascular Complications. LESTER PALMER, Seattle.

Insulin and Diet. HENRY T. RICKETTS, Chicago.

Question and Answer Period.

INTERMISSION TO VIEW EXHIBITS—3 TO 3:30 P. M.

3:30 P. M.

HENRY R. VIETS, Boston, Presiding

Jaundice. ALBERT SNELL, Rochester, Minn.

The Rh Factor. PHILIP LEVINE, Raritan, N. J.

What Can Be Seen in a Roentgenogram of the Chest? LEO G. RIGLER, Minneapolis.

THE SCIENTIFIC EXHIBIT AND THE TECHNICAL EXPOSITION WILL BE OPEN ON MONDAY AND TUESDAY, JANUARY 5 AND 6, 1948, AS WELL AS ON WEDNESDAY AND THURSDAY, JANUARY 7 AND 8, 1948, IN ORDER THAT ALL IN ATTENDANCE MAY HAVE AMPLE OPPORTUNITY TO VIEW THE EXHIBITS.

THE SCIENTIFIC EXHIBIT

The Scientific Exhibit will be located in the Exhibition Hall (downstairs from the Main Arena) of the Cleveland Public Auditorium. Clinics and demonstrations will augment the numerous exhibits.

The Scientific Exhibit will open Monday noon, January 5, and will close Thursday, January 8, at 3:30 p. m. On the intervening days it will be open from 8:30 a. m. to 6 p. m.

Committee on Scientific Exhibit.
DWIGHT H. MURRAY, Chairman.
E. J. MCCORMICK.
JAMES R. MILLER.
MORRIS FISHBEIN, ex officio.
GEORGE F. LULL, ex officio.
THOMAS G. HULL, Director.

CLINICAL DEMONSTRATIONS AND CONFERENCES

Clinical demonstrations and conferences will be presented on cancer, dermatology, diabetes and conservation of hearing. Patients will be supplied with the cooperation of Cleveland physicians.

Cancer Detection Center

Clinical demonstrations and conferences on cancer detection will be presented with the cooperation of the American Cancer Society, Ohio Medical Association Cancer Committee, Cleveland Academy of Medicine Cancer Committee, Ohio State Department of Public Health and the Elsa W. Pardee Foundation.

The committee in charge is as follows:

General Committee

H. T. KARSNER, General Chairman, Cleveland
A. F. SCHRELE, Washington, D. C.
L. A. POMEROY, Cleveland

Coordinating Committee

J. HENRY LAZZARI, Chairman, Cleveland
MRS. WAYNE EVANS, Cleveland

Subcommittee on Detection Center

Cancer Committee of Cleveland Academy of Medicine
J. R. ANDREWS, Chairman
S. O. FREEDLANDER
F. T. GALLAGHER
MARION N. GIBBONS
H. T. KARSNER
R. S. MCGINNESS
U. V. PORTMANN

Subcommittee on Equipment

CHARLES D. DOLEZAL, City Hospital, Cleveland
R. B. CRAWFORD, Lakewood Hospital, Cleveland
W. B. SEYMOUR, University Hospital, Cleveland

Subcommittee on Display

BRUNO GEBHARD
J. D. PORTERFIELD
CARL A. HAMANN
LOUIS HERGET

Demonstrations will be presented each morning and afternoon.

Cancer Information Center.—Demonstration of a cancer information center in actual operation: Patricia Palmer, Cuyahoga Chapter, American Cancer Society, in charge.

Cancer Appointment Center.—Demonstration of a cancer appointment center in actual operation: Mary Foley in charge.

Cancer Detection Centers.—Cancer detection centers will be operated with patients selected on a volunteer basis. Examinations will be official.

Examinations will be made by staff members of the Cleveland hospitals which operate cancer detection clinics as follows:

MONDAY, JANUARY 5

2 to 4 p. m., St. Luke's Hospital Staff.

D. M. GLOVER	J. A. TOPINKA
W. W. ADAMS	J. R. COLLINS
R. S. KNOWLTON	DAVID FISHMAN
S. TETALMAN	E. J. BROWN

TUESDAY, JANUARY 6

9:30 to 11:30 a. m., Cleveland City Hospital Staff.

R. J. MCNAMEE	M. M. POMERANTZ
H. A. SHECKET	L. ROTENBERG

2 to 4 p. m., Woman's Hospital Staff.

HELENA HOELSCHER	B. G. WIESSTIEN
K. E. HOFFMAN	E. T. ENDICOTT

WEDNESDAY, JANUARY 7

9:30 to 11:30 a. m., St. Vincent's Charity Hospital Staff.

D. C. DARRAH	A. H. DINDIA
P. A. MIELCAREK	H. L. MCNEELEY
P. P. DISBRO	W. H. O'DELL
S. C. MISSAL	H. E. KLEINHENZ
J. H. BUDD	

2 to 4 p. m., St. Alexis Hospital Staff.

V. T. KAVAL	C. R. LULENSKI
H. E. BOEHMER	J. R. MASTER

THURSDAY, JANUARY 8

9:30 to 11:30 a. m., St. Luke's Hospital Staff.
1:30 to 3:30 p. m., Cleveland City Hospital Staff.

Displays will be arranged in connection with the demonstrations, showing facsimiles of records in use and what to look for in cancer detection.

NOTE: Physicians attending the interim session who wish to be examined in the cancer detection clinic will be given every opportunity. Appointments will be made at the Cancer Appointment Center in the Scientific Exhibit.

Dermatology and General Practice

Clinical demonstrations and conferences will be conducted by the Cleveland Dermatological Society, with the presentation of patients who will be of interest to the physician in general practice. The chairman of the committee in charge is John E. Rauschkolb, Cleveland.

Following is the program to be presented throughout the week:

MONDAY, JANUARY 5

3 p. m. *Scabies and Impetigo: Diagnosis and Treatment.* HERBERT H. JOHNSON.

4 p. m. *Ringworm Infections: Their Diagnosis and Treatment with Emphasis on Scalp Infections.* BENJAMIN P. PERSKY.

TUESDAY, JANUARY 6

10 a. m. *Dermatitis Venenata: Industrial and Household Irritants.* GEORGE M. STROUD.

11 a. m. *Birthmarks: Their Diagnosis and Treatment.* GERARD A. DEOREO.

2 p. m. *Syphilis: Diagnosis and Therapy with Emphasis on Penicillin in the Treatment of the Disease.* HAROLD N. COLE.

3 p. m. *The Significance of the Blood Serology for Syphilis.* BENJAMIN LEVINE.

WEDNESDAY, JANUARY 7

10 a. m. *Skin Cancers: Diagnosis and Treatment.* JAMES R. DRIVER.

11 a. m. *Scabies and Impetigo: Diagnosis and Treatment.* CHARLES G. LAROCCO.

2 p. m. *Ringworm Infections: Their Diagnosis and Treatment with Emphasis on Scalp Infections.* JOHN A. GAMMEL.

3 p. m. *Dermatitis Venenata: Industrial and Household Irritants.* CLYDE L. CUMMER.

4 p. m. *Birthmarks: Their Diagnosis and Treatment.* H. G. MISKJIAN.

THURSDAY, JANUARY 8

10 a. m. *Syphilis: Diagnosis and Therapy with Emphasis on Penicillin in the Treatment of the Disease.* GEORGE W. BINKLEY.

11 a. m. *The Significance of the Blood Serology for Syphilis.* BENJAMIN S. KLINE.

2 p. m. *Skin Cancers: Diagnosis and Treatment.* EARL W. NETHERTON.

Diabetes and General Practice

Clinics and conferences will be conducted in an area adjoining the exhibits on Diabetes. A committee, including members of the George F. Baker Clinic, Boston, and the American Diabetes Association, under the chairmanship of Howard F. Root, Boston, has arranged the following program:

MONDAY, JANUARY 5

3 p. m. *Treatment with Insulin and Diet.* ALLEN P. JOSLIN, Boston.

TUESDAY, JANUARY 6

10 a. m. *Diabetic Acidosis and Coma.* ALLEN P. JOSLIN, Boston.

2 p. m. *Clinic: Control of Diabetes.* HENRY J. JOHN, Cleveland.

3 p. m. *Protamine Insulin and Regular Insulin.* ALLEN P. JOSLIN, Boston.

WEDNESDAY, JANUARY 7

9 a. m. *Medical Aspects of Diabetic Surgery.* HOWARD F. ROOT, Boston.

9:30 a. m. *Care of Diabetic Feet.* WILLIAM H. OLMSTED, St. Louis.

10 a. m. *Dietary Treatment Today.* FRANK N. ALLAN, Boston.

10:30 a. m. *Pregnancy and Diabetes.* LESTER J. PALMER, Seattle.

11 a. m. *Insulin Mixtures and Conservation of Insulin.* RUSSELL M. WILDER, Rochester, Minn.

11:30 a. m. *Short Blood Sugar Method for Office and Hospital.* RACHEL LEECH, Boston.

12 m. *Use of Insulin and Avoidance of Hypoglycemia.* HARRY H. BROMLEY, Cleveland.

12:30 p. m. *Case Finding and Early Diagnosis of Diabetes by the U. S. Public Health Service.* HUGH L. C. WILKERSON, Boston.

1 p. m. *Differential Diagnosis Including Meliturias.* ALEXANDER MARBLE, Boston.

1:30 p. m. *Intercapillary Glomerulosclerosis.* HENRY T. RICKETTS, Chicago.

2 p. m. *Diabetic Coma.* HOWARD F. ROOT, Boston.

2:30 p. m. *Clinic: Diabetes in Childhood.* HENRY J. JOHN, Cleveland.

3 p. m. *Pregnancy and Complications in Diabetes.* THOMAS P. SHARKEY, Dayton, Ohio.

3:30 p. m. *Difficulties in Treatment, Including Insulin Atrophies, Hypoglycemia.* HENRY B. MULHOLLAND, Charlottesville, Va.

4 p. m. *The Diabetic in Your Office.* CECIL STRIKER, Cincinnati.

4:30 p. m. *Insulin and Diet in Treatment.* JOSEPH H. BARACH, Pittsburgh.

5 p. m. *Treatment of Early Cases.* ALLEN P. JOSLIN, Boston.

THURSDAY, JANUARY 8

9 a. m. *Arteriosclerotic Complications.* BYRON D. BOWEN, Buffalo, N. Y.

9:30 a. m. *Treatment with Mixtures of Clear and Protamine Zinc Insulin.* F. B. PECK, Indianapolis.

10 a. m. *Experimental Diabetes in Relation to Present Treatment.* E. PERRY MCCULLAGH, Cleveland.

10:30 a. m. *General Treatment.* ELLIOTT P. JOSLIN, Boston.

11 a. m. *Treatment of Diabetic Neuropathy.* THOMAS P. SHARKEY, Dayton, Ohio.

11:30 a. m. *Conservative Treatment for Gangrene.* HOWARD F. ROOT, Boston.

12 m. *Education and Training of Diabetic Patients.* BLAIR HOLCOMB, Portland, Ore.

12:30 p. m. *Insulin in the Future.* CHARLES H. BEST, Toronto, Canada.

1 p. m. *Diet and Insulin During Diabetic Complications.* GEORGE P. HEFFNER, Charleston, W. Va.

Conservation of Hearing

Clinical demonstrations and conferences will be conducted on conservation of hearing and what the physician in general practice can do about it. The chairman of the committee in charge is Dean M. Lierle, Iowa City.

The following demonstrations will be given twice daily:

Otological Examination.—There will be a demonstration of the modern method of selecting and fitting a hearing aid. CHARLES E. KINNEY, Cleveland; RAYMOND CARHART, Evanston, Ill., and EVA THOMPSON, Philadelphia, in charge.

Lip Reading.—Demonstrations will be presented by expert lip readers. HOWARD A. CARTER, Chicago, in charge.

Question and Answer Conference.—The subjects discussed on different days will include the fenestration operation, therapeutic value of radium in otology, testing the hearing of school children, the fitting of hearing aids and the role of the physician in the program for the conservation of hearing. DEAN M. LIERLE, Iowa City, in charge.

EXHIBITS

CLEVELAND DERMATOLOGICAL SOCIETY, Cleveland:

The following exhibits on dermatology will be presented in connection with the clinical conferences on dermatology and general practice:

HAROLD N. COLE and GEORGE W. BINKLEY, Cleveland:

Syphilis: Diagnosis and Therapy with Emphasis on Penicillin in the Treatment of the Disease.

H. G. MISKJIAN and GERARD A. DEOREO, Cleveland:

Birthmarks: Diagnosis and Treatment.

JOHN A. GAMMEL and BENJAMIN P. PERSKY, Cleveland:

Ringworm Infections: Their Diagnosis and Treatment with Emphasis on Scalp Infections.

JAMES R. DRIVER and EARL W. NETHERTON, Cleveland:

Skin Cancers: Diagnosis and Treatment.

CHARLES G. LAROCCO and HERBERT H. JOHNSON, Cleveland:

Scabies and Impetigo: Diagnosis and Treatment.

CLYDE L. CUMMER and GEORGE M. STROUD, Cleveland:

Dermatitis Venenata: Industrial and Household Irritants.

BENJAMIN S. KLINE and BENJAMIN LEVINE, Cleveland:

The Significance of the Blood Serologic Test for Syphilis.

LEON GOLDMAN and W. MCDANIEL, Department of Dermatology and Syphilology; WALDO YOUNKER, Kettering Laboratory of Applied Physiology, and CARL SIEBENTRITT, Laboratory of Biophysics, University of Cincinnati College of Medicine, Cincinnati:

Clinical Microscopy of the Surface of the Skin: Anatomy, physiology and biophysics in relation to cutaneous optics are reviewed. Various types of apparatus for examination of the skin are shown, from simple magnifiers to new developments of skin microscopes. Types of illumination necessary for different technics of examination of the skin surface and skin capillaries are depicted. These technics include also fluorescent and infra-red microscopy. Brief mention is made of contrast phase microscopy in relationship to dermatology. Photomicrographs illustrating studies of various cutaneous conditions are exhibited, and an outline is given of some disorders in which cutaneous microscopy has been of value. Actual use of the skin microscopies will be demonstrated.

HAROLD N. COLE and JAMES R. DRIVER, Cleveland:

Cancer of Skin and Mucous Membrane: Exhibit of transparencies illustrating various types of malignant growth and diseases to be considered in differential diagnosis. Methods of treatment are shown.

KURT LANGE, LINN J. BOYD and DAVID WEINER, New York Medical College, New York:

Frostbite: Functional and Morphologic Pathology and the Prevention of Subsequent Gangrene: This is an exhibit showing how, by means of the fluorescein test, the sequence of events in frostbite as far as the vascular tree is concerned may be investigated. The initial stage of severe vasoconstriction is always followed by a state of complete restoration of circulation, during which the capillary permeability is greatly increased. During this stage silting of red cells, probably due to loss of plasma, takes place. These red cells are finally transformed into organized clots, the process leading to subsequent gangrene. If heparin is given early and long enough, this clot formation can be prevented. Cooling or warming after the end of exposure make the lesion worse; room temperature seems to be the best. Experiments on human volunteers, actual cases and pathologic specimens prove this fact. Kodachromes, photomicrographs, drawings and charts illustrate the findings.

LOUIS SCHWARTZ and PAUL C. CAMPBELL JR., U. S. Public Health Service, Bethesda, Md.:

Control of Epidemic Ringworm of the Scalp: The incidence of ringworm of the scalp in the United States and in the schools of Hagerstown, Md., is shown. Charts describe the methods used for the control of epidemics, including sanitation of barber shops, setting up of treatment clinics in the schools, method of identifying cases by means of the Wood light, method of sterilizing electric clippers and other barbers' instruments, evaluation of various topical applications for treatment and cultures of Microsporon audouini. Photographs of actual cases are shown.

U. V. PORTMANN, Cleveland Clinic, Cleveland:

Contact Roentgen Therapy for Superficial Lesions: Kodachrome slide photographs of patients are shown, with slide-sized descriptive legends in central wall; photographs of apparatus and advantages of the method of treatment are also depicted.

J. G. TOWNSEND, Industrial Hygiene Division, United States Public Health Service, Washington, D. C.:

Progress in Industrial Hygiene: Progress is shown in the two major activities of the Industrial Hygiene Division, U. S. Public Health Service, investigations of hazardous industries leading to the control of occupational diseases, and growth of

industrial hygiene practice through the establishment of industrial hygiene units in states and localities. Gross lung specimens and roentgenograms of workers exposed to silicosis and asbestosis-producing dusts are presented.

REX H. WILSON, B. F. Goodrich Company, Akron, Ohio:

Medical Problems Encountered in the Manufacture of American-Made Rubber: The exhibit displays the chief components of American-made rubber (synthetic rubber), the chemical processes occurring in the manufacture of this rubber and its conversion into useful products. A description is given of the health hazards of each component, with the proper methods of handling from a medical standpoint and the treatment if overexposure has occurred to any of the components.

CARL M. PETERSON and HAROLD R. HENNESSY, Council on Industrial Health, American Medical Association, Chicago:

Industrial Health-Past, Present and Future: The exhibit consists of drawings on panels depicting industrial medicine in the Ramazzini era, the present modern era and the Atomic era of the future.

CARL M. PETERSON, Council on Industrial Health, American Medical Association, Chicago:

Consultations and Conferences on Industrial Health: Consultations and conferences on problems relating to industrial health will be held at stated hours throughout the week.

HENRY H. KESSLER, New Jersey Rehabilitation Clinic, Newark, N. J.:

Physical Rehabilitation of Amputees: This exhibit will present methods of rehabilitating persons who have major amputations of upper or lower extremities.

W. OLIVER KINCANNON, Federal Security Agency, Office of Vocational Rehabilitation, Washington, D. C.:

Vocational Rehabilitation for Civilians: The exhibit shows before and after photographs of persons who have been restored to self-sustaining status through surgery, prostheses and other vocational rehabilitation services together with charts and pictograms.

DONALD A. COVALT, Department of Medicine and Surgery, Veterans Administration, Washington, D. C.:

Physical Rehabilitation of Neurologic Disabilities: The exhibit utilizes actual rehabilitated patients to demonstrate the employment of physical medicine in the restoration of disabled veterans who had neurologic disabilities.

I. DONALD FAGIN and ALAN FRANK, Health Institute of the UAW-CIO, Detroit:

Medical and Allied Services in a Labor Setting: The exhibit will include photographs of activities at the Health Institute, including the medical diagnostic clinic, the social service department and the health and safety education department.

HOWARD F. POLLEY and FRANK H. KRUSEN, Mayo Clinic, Rochester, Minn.:

Physical Medicine and Arthritis: The exhibit will demonstrate the use of various physical agents, such as heat, massage, therapeutic exercise, occupational therapy and adjuncts which facilitate rehabilitation in the treatment of persons having arthritis. Stress will be placed on such physical agents as are readily and generally available in the patient's home.

WILLIAM BENHAM SNOW, College of Physicians and Surgeons, New York:

A Program in Physical Medicine: The exhibit includes (1) the educational program at the College of Physicians and Surgeons, including training courses for therapists in occupational and physical therapy, and postgraduate instruction in physical medicine including fellowships under the Baruch grant, orientation to nurses and other groups; (2) research in physical medicine now going on under the Baruch grant; (3) physical and occupational therapy service and its operation at the Presbyterian Hospital, Vanderbilt Clinic and allied hospitals. Special attention is given to the cerebral palsy problem, posture and occupational therapy in the curative workshop and at bedside for improvement in body function

COL. B. A. STRICKLAND, Physical Medicine Division, Office of Surgeon General, U. S. Army, Washington, D. C.:

Occupational Therapy: Exhibit of photographs and other data showing occupational therapy. This exhibit is presented with the assistance of the American Occupational Therapy Association and members of the Ohio division of that organization.

C. J. POTTHOFF, American National Red Cross, Washington, D. C.:

Automobile Accidents: Charts and statistics show the magnitude of the accident problem. Posters and manikins portray the preparation of fracture victims for transportation, with demonstrations of splinting methods for various fractures. Equipment that a physician should carry in his automobile is stressed. Film slides and posters further depict the application of traction splints and the transportation of patients in an automobile.

ANDREW C. IVY and HENRY SCHWERMA, Chicago:

Artificial Respiration: The exhibit consists of (1) demonstration on living subjects of modern methods used in emergency artificial respiration; (2) explanation and demonstration of apparatus used in emergency artificial respiration; (3) physiology of artificial respiration, and (4) charts on research in the field.

H. H. SCHRENK and J. P. HARMON, Bureau of Mines, Pittsburgh:

Modern Welfare Facilities in Mining Communities: Photographs of modern welfare facilities such as houses, schools, club houses, playgrounds, change houses and hospitals in various metal and coal-mining communities are shown.

L. E. HOLMGREN, Jackson Clinic, Madison, Wis.:

Varicose Veins—Diagnosis and Treatment: Charts and drawings explain the necessity of individualization of each case for determining the proper type of therapy to use. Anatomic drawings and drawings which illustrate a special diagnostic test are shown. Charts and moulages illustrate surgical steps in the high ligation of the saphenous vein. Charts and moulages also illustrate the treatment of varicose ulcers. The end results of some 700 cases are presented.

F. H. FALLS, University of Illinois College of Medicine, and CHARLOTTE S. HOLT, Illinois State Department of Public Health, Chicago:

Puerperal Sepsis: Moulages, models, drawings, photomicrographs, charts and graphs depicting the etiology, pathology, diagnosis and treatment of various forms of puerperal sepsis are shown. The subject of puerperal sepsis is presented as part of the program of visual education in Illinois. It is a cooperative educational program between the State University and the State Department of Public Health and is used in the instruction of undergraduate and postgraduate medical students, interns and nurses throughout the state.

PHILIP LEVINE, Ortho Research Foundation, Raritan, N. J.:

The Rh Factor and Pathogenesis of Erythroblastosis Fetalis: A series of charts and photographs giving the history of the Rh factor, statistical proof for the pathogenesis of erythroblastosis, racial incidence, mechanism of transplacental isoimmunization, varieties of anti-Rh serums, heredity of the Rh-Hr systems and the role of the anamnestic reaction in the occurrence of erythroblastosis in the first born.

E. L. MACQUIDDY, University of Nebraska College of Medicine, Omaha:

Absorbable Powder Tissue Reactions and Physical Properties: Results obtained with an absorbable powder showing tissue reactions obtained by intraperitoneal and tissue implantation and insufflation are demonstrated. Both short term and long term experiments are represented. Allergenic properties are reported. The absorbable agent demonstrated is a processed starch, studied as a glove, dressing and dusting powder.

GROVER C. PENBERTHY, C. N. WELLER, R. J. NOER and J. L. POSCH, Wayne University College of Medicine and the Children's Hospital of Michigan, Detroit:

Treatment of Burns: The treatment of burned patients will include a presentation of physiologic disturbances produced by

severe burns and means for restoring the patient's normal status. The treatment of the burned surfaces will include types of dressings and principles of early epithelial replacement.

FOARD G. MCGINNES, American Red Cross, Washington:

Improving the Nation's Health with Human Blood: The exhibit depicts the blood program of the American National Red Cross. The use of whole blood and plasma fractionations is shown as well as plasma derivatives.

H. D. BOUMAN and MARGARET A. KOHLI, University of Wisconsin Medical School, Madison; CATHERINE WORTHINGHAM and ROLAND H. BERG, National Foundation for Infantile Paralysis, Inc., New York:

Infantile Paralysis: The exhibit depicts the critical signs of the disease, technics of muscle examination and a graphic review of world occurrence of polio. As an aid to physicians in diagnosing infantile paralysis, twenty signs of poliomyelitis have been reproduced in lifelike miniature sculptures and color films. Included are the characteristic signs which may occur in neck, back, chest, arms and legs. Scheduled demonstrations will cover the care of the poliomyelitis patient in the acute, convalescent and chronic stages of the disease. The following technics will be presented: (1) relaxation of muscle spasm and stretching of tight muscle groups; (2) manual muscle testing, and (3) muscle reeducation (including gait training).

A. B. BAKER, J. R. BROWN, ALLAN HEMINGWAY, W. KUBICEK, MAURICE B. VISSCHER, University of Minnesota, Minneapolis:

The Diagnosis and Treatment of Bulbar Poliomyelitis: A graphic visualization of the neuropathologic and physiologic problems in the diagnosis of bulbar poliomyelitis. Presentation will be made of the various categories of involvement and their specific problems of therapy. Discussions and demonstrations will be given on the principles involved and the treatment procedures.

MILDRED ELSON, New York:

American Physiotherapy Association: The exhibit describes the services of the American Physiotherapy Association and its publication, *The Physiotherapy Review.* A center panel is devoted to physical therapy education with kodachrome illustrations and physical therapy at work, likewise illustrated by kodachrome prints and script.

CHAMP LYONS, H. S. MAYERSON and PAUL T. DECAMP, Tulane University, New Orleans:

Chronic Shock, the Problem of Reduced Blood Volume in the Chronically Ill Patient: The surgically significant feature of protein depletion is a reduced blood volume. Deficiencies of total circulating hemoglobin frequently outweigh deficiencies of tissue protein. These features have been correlated in a syndrome of "chronic shock." The exhibit presents the evidence validating quantitative aspects of transfusion therapy. It is shown that correction of blood volume preoperatively is a clinically practical method of preparing the patient with protein depletion for any needed operation. Increased dietary protein is reserved for especial emphasis in the postoperative care of patients after surgical correction of the etiologic factors contributing to protein depletion.

JAMES A. DICKSON, Cleveland Clinic, Cleveland:

Ununited Fractures of the Neck of the Femur: Their Causes and Treatment: The factors, both mechanical and circulatory, that play the most important role in the causation of ununited fractures of the neck of the femur are demonstrated. Results of treatment aimed at overcoming the contributing factors are illustrated by photographs and roentgenograms.

C. W. EMMONS, JOSEPH A. BELL and BYRON J. OLSON, National Institute of Health, U. S. Public Health Service, Bethesda, Md.:

Histoplasmosis: The exhibit shows the fungus Histoplasma capsulatum and the pathology in man and animals, methods of diagnosis and natural history of the disease it causes.

N. C. KIEFER and IRA LEWIS, Tuberculosis Control Division, U. S. Public Health Service, Washington, D. C.:

Pulmonary Lesions Associated with Histoplasmin Sensitivity: A demonstration is given of radiographic pulmonary observations correlated with the histoplasmin skin test. In the last few years the correlation between calcification in the chest and histoplasmin sensitivity has been established. Films demonstrating parenchymal infiltrates, which in many cases progress to calcification and which are associated with coincident conversion in histoplasmin sensitivity, are shown.

F. J. WEBER and H. F. A. LONG, Tuberculosis Control Division, U. S. Public Health Service, Washington, D. C.:

Diagnosis of Early Tuberculosis: The exhibit shows certain aspects of diagnosis, prognosis and treatment of tuberculosis.

JULIE E. MIALE, National Tuberculosis Association, New York:

Tuberculosis Control in Industry; A Four Point Program for Industry: The exhibit describes the high points of a program of tuberculosis control for industrial plants.

CHEVALIER L. JACKSON, CHARLES M. NORRIS and WALTER MALONEY, Temple University Hospital and School of Medicine, Philadelphia:

Foreign Bodies in the Air and Food Passages and Their Role in the Development of Bronchoesophagology: The history of bronchoscopy and esophagoscopy is presented in outline form. Salient features of disease of foreign body origin are presented from the point of view of etiology, symptomatology and diagnosis, pathology and treatment. The mechanism of bronchial obstruction by foreign body and the importance of its manifestation by physical signs and roentgen examination in diagnosis of foreign body as well as in diagnosis of disease of other than foreign body origin are demonstrated. Actual specimens of foreign bodies are displayed and interesting facts regarding the case histories of typical cases are given, including explanation of the mechanical problems presented and the methods of their solution.

H. S. VAN ORDSTRAND and V. SUNDGREN, Cleveland Clinic, Cleveland:

Virus Pneumonias: Charts, posters and transparencies (of roentgenograms) demonstrating the problems of diagnosis and differential diagnosis of virus pneumonias and their management.

C. ROBERT HUGHES, Cleveland Clinic, Cleveland:

Anomalous Lesions of the Urinary Tract: Transparencies illustrating roentgen films of anomalous lesions, with a summary of the clinical history and the diagnostic procedures.

R. C. KLUSSENDORF, H. A. HAGAN, W. A. YOUNG, J. S. BENGSTON and C. N. BRAMER, American Veterinary Medical Association:

Rabies: Exhibit will show the manifestations of rabies in animals, the wide variety of animals which may be affected, the manner of spread and the means of diagnosis.

CARL C. FRANCIS, Western Reserve University, Cleveland:

Standards of Human Skeletal Maturation for Lower Extremity: Exhibit consists of representative roentgenograms or photographs of standards of skeletal maturation of the knee and foot based on Brush Foundation material. These will be published in an atlas of skeletal maturation of the lower extremity for use by pediatricians, roentgenologists and others interested in the problems of child development.

P. L. HARRIS and L. F. EY, Ohio State Department of Health, Columbus:

Dog Bites: The exhibit will show what to do about dog bites, when to take antirabic treatment and the schedule of treatment.

HUGH L. C. WILKERSON, Diabetes Section, U. S. Public Health Service; JOSEPH H. BARACH and FRANK N. ALLAN, American Diabetes Association, Boston:

Diabetes in the United States: The activities of the American Diabetes Association in helping physicians and patients to meet the problems of diabetes are presented. The results of the diabetes program of the U. S. Public Health Service are demonstrated, with statistics on the incidence of diabetes as revealed by the case finding study in Oxford, Mass.

R. J. HUEBNER, W. L. JELLISON and MORRIS GREENBERG, National Institute of Health, U. S. Public Health Service,

Bethesda, Md., and the City of New York Department of Health, New York:

Rickettsialpox: The exhibit shows clinical characteristics, etiologic and epidemiologic factors such as the vector and the reservoir and some of the environmental conditions responsible for the spread of the disease.

CARL F. JORDAN and I. H. BORTS, Iowa State Department of Health, Des Moines and Iowa City:

Brucellosis: The reported occurrence of brucellosis in the forty-eight states from 1930 to 1946 is presented. Attention is directed to the three causative brucella organisms, with special emphasis on the caprine strain (Brucella melitensis) recently recognized as being endemic in Iowa and other Midwestern states. Means of conveyance, population groups concerned and survey results are portrayed. Clinical and laboratory data, therapeutic methods and chronic brucellosis receive careful consideration. Literature will be available for distribution.

JOSEPH FELSEN and WILLIAM WOLARSKY, Bronx Hospital, Bronx, New York:

Bacillary Dysentery, Colitis and Enteritis: The exhibit deals with acute and chronic bacillary dysentery with particular reference to World War II. Studies on returning veterans and associated personnel in training and combat areas and follow-up studies on the incidence of regional ileitis and chronic ulcerative colitis are shown. General studies on the new epidemiologic, bacteriologic, clinical and therapeutic aspects are included, with the status of prophylactic vaccination. Teaching sets for physicians and public health workers will be presented.

FRANKLIN C. BING and WILLIAM B. BRADLEY, American Institute of Baking, Chicago:

Enriched Bread and Flour: The present status of the enrichment program will be demonstrated, with particular reference to its health implications, the methods employed by millers and bakers to enrich flour and bread, and the nutritional significance of the program from the point of view of the general practitioner.

SAMUEL SPECTOR and CHARLES F. MCKHANN, Babies and Childrens Hospital, Cleveland:

Respiratory Acidosis and Alkalosis in Children: Presentation of chemical findings in patients with respiratory acidosis and alkalosis. An analysis of pathogenesis, differences from metabolic acidosis and alkalosis and treatment.

HENRY J. GERSTENBERGER, Babies and Childrens Hospital of Cleveland, Cleveland:

The Protection of the Phosphorus Metabolism of Newly Born Infants by the Early (Eighth Day) Parenteral Administration of a Single, Small Dose of Vitamin D_3 in Oil: The data warranting the conclusions presented in the title were obtained as a result of studies made at the Babies and Childrens Hospital of Cleveland with monkeys (Macacus rhesus) and with full term and prematurely born infants, with and without rickets or rachitic spasmophilia. It has been learned that it is regularly possible to protect well, growing infants against rickets and its related disorders for periods varying from a minimum of six months to a maximum of twelve months by a single parenteral administration of a relatively small dose of vitamin D_3 in oil (1 cc.). The exhibit has been prepared to present illustrative and representative data.

O. P. KIMBALL, Goiter Study Committee, American Public Health Association, Cleveland:

Prophylaxis of Endemic Goiter: Exhibit consists of wax models of different types and stages of thyroid changes. Graphic presentation of distribution of endemic goiter here, especially in Michigan, West Virginia and Ohio, before and after iodized salt prophylaxis. Series of photographs describing clinical evidence and stages before and after treatment.

DONALD B. ARMSTRONG and GEORGE M. WHEATLEY, Metropolitan Life Insurance Company, New York:

The School Child, Health Progress and Needs: Charts describe the conquest of childhood diseases; evidences of improvement in physical status of school children; current problems of child health as revealed by mortality and morbidity are demonstrated by statistics and photographs; the principles of case finding, prevention and care are stated.

SMITH FREEMAN and C. H. SLOCUMB, Mayo Clinic, Rochester, Minn.:

Vitamin D Poisoning (Hypervitaminosis D) in Human Subjects: The exhibit includes histories, symptoms, clinical, roentgenologic and chemical findings in patients with vitamin D poisoning. The contributing factors, early recognition, course, complications and management are presented.

BRUNO GEBHARD, Cleveland Health Museum, Cleveland:

New Visual Teaching Aids for Physicians: The education of the patient in the physician's office and at the bedside is effective only when fully understood. Because physicians are frequently asked to give group instruction, they should be familiar with the basic technics of health education. Better than spoken or printed words, visual methods are timesavers and guard against misunderstanding; at the same time they give a better impression of the facts conveyed. Plastic materials, rather than wax models, permit easier handling. Duplicates of the Dickinson Collection, particularly in the field of obstetrics and gynecology, are useful for professional as well as lay education.

H. L. FOSS and HENRY F. HUNT, George F. Geisinger Memorial Hospital, Danville, Pa.:

The Rural Medical Center Under Full Time Staff Plan: The development of a rural medical center and the various departments providing diagnostic facilities to physicians referring patients for problems in diagnosis and treatment is presented, together with the role that such a center plays as an educational institution: for (*a*) interns, (*b*) residents, (*c*) physicians of the surrounding areas, (*d*) nurses and (*e*) technicians. For the community as a whole it is shown how such a center may assist in safeguarding the public health by furnishing laboratory and hospital facilities and by instructing the layman in medical and public health problems. Basically the exhibit emphasizes what may be done by the coordination of professional effort in a medical center serving a far flung rural area.

LAWSON WILKINS, Baltimore; RICHARD WAGNER, Boston; WILLIAM A. REILLY, Little Rock, Ark.; WILLIAM C. DEAMER, San Francisco, and H. P. G. SECKEL, Chicago:

Endocrine Disorders of Childhood and Adolescence: The following subjects are presented:

1. Genetic and Endocrine Relationships Influencing Growth and Development: The interrelations of the principal endocrine glands which are concerned with growth and development are shown. The same hormonal effect on the body may be due to an alteration in the brain centers, the pituitary and a "target-gland," such as the thyroid, adrenal or gonad.

2. Congenital Anomalies Sometimes Mistaken for Endocrinopathies: The commoner types of abnormalities in patients coming to an endocrine clinic for diagnosis at different age periods are shown. They are classified as congenital anomalies which are not endocrine, constitutional variations in the endocrine balances during adolescence and true endocrine disorders. Various congenital anomalies and genetic syndromes are illustrated by photographs.

3. Deviations from the "Normal" Patterns of Growth and Development Due to Constitutional Differences in the Endocrine or Genetic Pattern: The average types of somatic growth and sexual development are illustrated by charts and photographs. Pronounced differences in adolescent development that are encountered in otherwise normal children are shown. Differences in the time of onset and pattern of sexual development are emphasized.

4. Hypothyroidism: The physiologic signs and the evidences of retardation of development which result from hypothyroidism during childhood are shown, together with a classification of causes.

5. Isosexual Precocity (Premature Development Along Normal Sex Pattern): Classification of causes and diagnostic signs of cases due to neurologic disorders, idiopathic premature

activation of pituitary, gonadal tumor and adrenal disorder (in males) are presented. Also shown are cases of brain tumor, hypothalamic defect, postencephalitic disorder, Albright's syndrome, idiopathic or "constitutional" type of precocious development, granulosa cell tumor of ovary, interstitial cell tumor of testis. (Adrenal disorders causing precocity in males are shown in section 7.)

6. Heterosexual Development: Differentiation between sex reversals due to a true endocrine disorder in the individual, and intersexes having abnormal mosaics of male and female differentiation controlled by the genes are presented, as well as the diversity of the sex abnormalities occurring in genetic intersexes. In some there are abnormalities only of the genital ducts and in others there are bisexual gonads.

7. Adrenal Disorders: The following groups of cases are shown: (*a*) congenital androgenic hyperplasia in females (female pseudohermaphroditism); (*b*) congenital androgenic hyperplasia in males (macrogenitosomia precox); (*c*) adrenal tumor, causing virilization of females; (*d*) feminizing adrenal tumor, causing gynecomastia in a boy 5 years of age; (*e*) Cushing's syndrome, due to adrenal hyperplasia, and (*f*) Cushing's syndrome (obesity and mild virilization) due to adrenal tumor in a girl.

8. Sexual Infantilism: Classification and diagnostic signs of neurogenic, pituitary and gonadal types of sexual infantilism are shown. Charts show how the diagnosis can be made by finding a high excretion of follicle-stimulating hormone in primary hypogonadism. The following groups of cases are shown: (*a*) panhypopituitary dwarfism with sexual infantilism; (*b*) hypothalamic lesions, suprasellar cysts, Froelich's syndrome; (*c*) specific deficiency of pituitary gonadotropin; (*d*) syndrome of ovarian agenesis and dwarfism, and (*e*) primary degeneration of the seminiferous tubules (Klinefelter's syndrome).

9. Dwarfism: Some of the differences between pituitary dwarfism, delayed adolescence and primordial dwarfism are presented, and the difficulties of making a diagnosis before age 16 or 17 are pointed out. Charts illustrate the differences in skeletal proportions in hypothyroidism and other types of dwarfism and the methods of charting the "patterns" of growth and development. Photographs and developmental charts illustrate the various types of dwarfs. Several types of progeria are shown.

10. Treatment of Sexual Infantilism and Dwarfism: The exhibit shows (*a*) delayed adolescence (treatment only occasionally indicated for psychologic reasons), (*b*) ovarian agenesis, (*c*) pituitary infantilism and dwarfism in males and (*d*) pituitary infantilism in females.

11. Methods of Endocrine Study and Hormone Assays: Charts depict diagnostic values of clinical tests (such as vaginal smears, and endometrial biopsies), bioassays and chemical studies of the urine. Technics are given. Methods of studying carbohydrate metabolism and electrolyte control are shown.

HOWARD F. ROOT, ELLIOTT P. JOSLIN, PRISCILLA WHITE, ALLEN P. JOSLIN, C. C. BAILEY and HERBERT H. MARKS, New England Deaconess Hospital, Boston, and Metropolitan Life Insurance Company, New York:

Diabetes Mellitus: The exhibit consists of charts and posters summarizing new data in experimental studies of diabetes and in the clinical treatment of diabetes and its complications. Laboratory demonstrations will show methods of diagnosis and will emphasize the importance of early detection of diabetes.

HAROLD E. HARRIS, Cleveland Clinic, Cleveland:

The Fenestration Operation for Deafness: The exhibit consists chiefly of transparencies showing the criteria for the selection of cases, also drawings showing in detail the technic of the fenestration operation, and audiometric records with results and limitations of the operation.

CHARLES A. DOAN and CLAUDE-STARR WRIGHT, Ohio State University College of Medicine, Columbus:

Hematologic Dyscrasias—Precise Diagnosis; Specific Therapy: Charts and graphs depict diagnostic and therapeutic measures in splenic and bone marrow pathology.

CHARLES WALTER CLARKE, American Social Hygiene Association, New York:

Prevention of Venereal Diseases: A rounded concept of prevention of syphilis and gonorrhea including medical, social and educational aspects is presented. The exhibit points out that the "find 'em and treat 'em" plan is not enough and emphasizes the need to deal with sexual promiscuity, which is the usual method of spread of infection. The places of chemical, mechanical and oral prophylaxis, therapeutic disinfection and congenital syphilis by antepartum treatment of the mother are shown. An actual epidemiologic investigation is presented, with an indication of what might have been done at various points to prevent the transmission of syphilis or gonorrhea.

STUART W. HARRINGTON, HOWARD K. GRAY and O. THERON CLAGETT, Mayo Clinic, Rochester, Minn.:

Surgical Treatment of Certain Intrathoracic Lesions: The exhibit deals with diagnosis and surgical treatment of (*a*) lesions of the esophagus such as benign and malignant tumors and esophageal and pharyngeoesophageal diverticula; (*b*) extrapulmonary lesions such as neurofibromas, teratomas and thymoma; (*c*) intrapulmonary lesions such as carcinomas of the lung and bronchus, bronchial adenomas, hamartomas and pulmonary suppurative diseases; (*d*) cardiac lesions such as chronic constrictive pericarditis and patent ductus arteriosus.

H. R. ROSSMILLER, Cleveland Clinic, Cleveland:

Gastroscopy; Model Demonstration: Model of human stomach containing various types of lesions may be viewed through a gastroscope. Clinical data, roentgenograms and the gastroscopic picture in different gastric lesions are shown.

T. E. JONES and GEORGE CRILE JR., Cleveland Clinic, Cleveland:

Vagotomy for Duodenal Ulcer: A chart and drawing demonstration compares the results following a vagotomy in the treatment of peptic ulcer with the results of gastric resection.

T. J. DRY, J. E. EDWARDS, R. L. PARKER, H. B. BURCHELL, A. H. BULBULIAN and H. M. ROGERS, Mayo Clinic, Rochester, Minn.:

Congenital Anomalies of the Heart and Great Vessels; Clinicopathologic Correlation: Representative examples of major anomalies of the heart and great vessels are presented by models showing external anatomy as well as internal structure of the various types encountered; drawings explaining the abnormal circulation; roentgenograms and electrocardiograms of the various types; pertinent clinical features observed in each type.

A. CARLTON ERNSTENE, Cleveland Clinic, Cleveland:

The Value and Limitations of the Electrocardiogram: A series of transparencies of electrocardiograms with explanatory legends illustrate the important arrhythmias, conduction disturbances, abnormal axis deviation and the changes which result from coronary artery disease and pericarditis. Emphasis will be placed on the fact that although the electrocardiogram is an essential part of the study of every cardiac problem, a normal tracing does not exclude the presence of organic disease of the heart. An accurate clinical history and thorough physical examination are essential to diagnosis and prognosis.

HARRY WALLERSTEIN, Jewish Memorial Hospital, New York:

Substitution Transfusion Treatment of Erythroblastosis Fetalis: Charts illustrate former methods of treatment plus mortality rates. Kodachrome photomicrographs demonstrate significant pathologic factors and reasons for the development of the substitution technic. Kodachrome enlargements show technics of exsanguination and replacement using sagittal sinus, radial artery and umbilical vein routes. There are charts emphasizing indications for therapy, including attempt at evaluation of antibody studies and comparative mortality rates.

RALPH P. CREER, Committee on Medical Motion Pictures, American Medical Association, Chicago:

Information About Medical Motion Pictures: Consultations and conferences related to medical motion pictures and their use will be carried on throughout the week.

MOTION PICTURES

Motion pictures will be shown in the motion picture theater adjoining the Scientific Exhibit. The following films will be shown daily from 9:15 a. m. to 12:00 noon and from 1:30 to 6 p. m.

9:15 a. m.

THE BRITISH MINISTRY OF INFORMATION in cooperation with THE BRITISH ORTHOPAEDIC ASSOCIATION and BRITISH COUNCIL MEDICAL COMMITTEE:

Accident Service: Motion picture shows an intensive study of work at a Rehabilitation Center for injured coal miners. It illustrates various operations and postoperative care. This gives the film a strong medical slant. The object of the film is to depict such a service and to present the various aspects of its work as parts of a continuous coordinated process, which ends not in the healing of a broken bone but in the rehabilitation of an injured man. Sound, forty minutes.

9:55 a. m.

MINE SAFETY APPLIANCES COMPANY, Pittsburgh:

The Air We Breathe: Motion picture illustrates the use of the respirator for protection of the worker against dust, gases and other air contaminants. The film includes the testing, care and maintenance of respirators. Sound, color, thirty minutes.

10:25 a. m.

UNITED STATES ARMY, Medical Department, Washington, D. C.:

To Hear Again: Motion picture describes the Army's aural rehabilitation program. It shows the need for and methods of study of case histories and exhaustive hearing tests under varied conditions; determination of possible psychic basis of the deafness, and the programs utilized to build up mental attitudes and overcome discouragement; the study and treatment in 2 typical cases, the first caused by physical infection and the second with mental cause; selection of hearing aids for those requiring them, and instruction in the selection and use; correction of speech difficulties resulting from deafness; the teaching of lip reading, and the adjustment of patients to civilian life. Sound, thirty-five minutes.

11:00 a. m.

GEORGE E. SHAMBAUGH JR., Chicago:

Fenestration Operation for Otosclerosis: Motion picture consists of animation showing the physiology of hearing, the hearing loss caused by otosclerosis, and the mechanism of the hearing improvement following the fenestration operation. A typical patient with otosclerosis is then presented, with the indications for the operation. The operation is then performed on this patient and the hearing result, three weeks later, is shown. Silent, color, forty-two minutes.

11:42 a. m.

L. E. HOLMGREN, Jackson Clinic, Madison, Wis.:

Varicose Veins—Diagnosis and Treatment: Motion picture demonstrates the various diagnostic tests and the application of these tests to various patients. The operative technic of a high saphenous ligation is shown followed by the postoperative tests made to demonstrate the need, if any, for further treatment. Silent, color, thirteen minutes.

1:30 p. m.

BRITISH MINISTRY OF HEALTH:

Scabies: Motion picture presents up-to-date information on the diagnosis and cure of scabies through demonstrations of actual cases and through photomicrography. It shows the relative merits of various scabicides. Sound, thirty minutes.

2:00 p. m.

JOHN C. ULLERY, Upper Darby, Pa.:

Continuous Spinal Analgesia in Cesarean Section: Motion picture shows the anatomy and technic of continuous spinal analgesia for performing a cesarean section. Emphasis is placed on the safety of the procedure, using small repeated doses of procaine. The controllability of the analgesia in reaching and maintaining the desired level is shown, as is the ability to withdraw a large portion of the analgesic if any untoward reactions occur. Silent, color, forty-two minutes.

2:45 p. m.

HARRY WALLERSTEIN, Jewish Memorial Hospital, New York:

Treatment of Erythroblastosis Fetalis by Substitution Transfusion: Motion picture gives a brief résumé with pathologic slides of the significant pathologic changes in erythroblastosis. Kernicterus and histologic slides of the significant liver changes, as well as peripheral blood smear, are included. The technics of the procedures described are enumerated step by step and illustrated by actual performance on the screen. Charts are included in the film to show comparative results. Methods using the superior sagittal sinus, the radial artery and umbilical vein are included. Silent, color, twenty-five minutes.

3:10 p. m.

S. PHILIP GOODHART and BENJAMIN HARRIS BALSER, New York:

Psychoneuroses: Motion picture shows the relationship of organic and psychogenic conditions. Silent, twenty-five minutes.

3:35 p. m.

HENRY R. VIETS and ROBERT S. SCHWAB, Massachusetts General Hospital, Boston:

Myasthenia Gravis (Erb-Goldflam Syndrome) 1941-1946: Motion picture depicts briefly the history of the knowledge of this disease, the treatments used prior to the instigation of neostigmine in 1934, the current treatment of the disease, and a summary of 175 cases observed since 1935 in the Myasthenia Gravis Clinic at the Massachusetts General Hospital, Boston. Silent, twelve minutes.

3:50 p. m.

NORMAN MILLER, University of Michigan, Ann Arbor:

The Human Cervix in Health and Disease: Motion picture shows the human cervix with lesions commonly seen by the physician in his daily practice. Silent, color, twenty minutes.

4:10 p. m.

ALFRED BLALOCK, Johns Hopkins Hospital, Baltimore:

Surgical Treatment of Pulmonic Stenosis: Motion picture begins with preoperative views of a 5 year old cyanotic child with a diagnosis of the tetralogy of Fallot. The child is then anesthetized, the right pleural cavity is opened, the right pulmonary artery is exposed, and the right subclavian artery is exposed. The proximal end of the right subclavian artery is anastomosed to an opening in the side of the right pulmonary artery, an end to side anastomosis. Incisions in the mediastinal pleura and in the chest wall are then closed. Postoperative views show the child on the thirteenth postoperative day and six months following operation. Silent, color, forty-five minutes.

4:55 p. m.

J. ERNEST AYRE, Royal Victoria Hospital and McGill University, Montreal, Quebec:

"Precancer" Diagnosis of the Cervix by Cytology: Motion picture demonstrates the use of a new method of uterine cancer diagnosis, the selective cytology technic. Although not a biopsy and not a smear, the selective method is a scraping from the squamocolumnar junction of the cervix by means of a specially adapted cervical applicator. The scraping gives a true "surface biopsy" of this area, so vulnerable to the development of squamous carcinoma. The test is simply and painlessly taken during the course of a routine gynecologic examination. This refinement of the Papanicolaou technic has proved more efficient than any other cytologic method, including the single biopsy, in the detection of preclinical cervical cancer. Sound, color, thirty minutes.

5:25 p. m.

COMMITTEE ON MEDICAL MOTION PICTURES, American Medical Association, Chicago:

The Medical Motion Picture; History and Development: Motion picture consists of excerpts from several films made prior to, during and following World War I. The first surgical motion picture taken on 16 mm. film is included. Examples of modern technics such as animation, microcinematography, endoscopic photography and moving x-rays are illustrated. The final sequence provides a brief behind the scenes look into the production of good teaching film. Sound, color, thirty-five minutes.

The TECHNICAL Exposition

Cleveland Public Auditorium

An outstanding feature of the A. M. A. Interim (Mid-Year) Session is the TECHNICAL EXPOSITION which will occupy the entire main arena (street level) of the Cleveland Auditorium. Here in over 270 units of space will be displayed products of more than 150 firms developed specifically for implementing the work of the General Practitioner and the Industrial Physician.

Exhibits will highlight new improvements in products, technical advances, and forward strides in manufacturing. Many pharmaceutical firms will present new biologicals, antibiotics, new organic synthetic medicinals; food concerns will feature new advancements in nutrition; instrument, apparatus, and supply houses will offer latest developments in equipment; publishers will show books of special usefulness to the family physician.

Here the Industrial physician, too, will find medical sciences and services displayed for his benefit. Here he will come in lively contact with the progressive industries serving him.

Physicians can feel free to inspect all exhibits without any feeling of obligation. From 8:30 A. M. Monday, January 5, 1948, to 6:00 P. M. each day thru 3:30 Thursday afternoon, January 8, the Exposition will be in full activity. By visiting the exhibits before, after, and in-between meetings (at recesses), the physician should add to his knowledge of physical aids available, meet old friends, and make new ones.

THOS. R. GARDINER,
Business Manager and Director of Exhibits.

LIST OF TECHNICAL EXHIBITORS WITH DESCRIPTIVE ITEMS RECEIVED UP TO PRESS TIME

ABBOTT LABORATORIES
Booth B-2

You are most heartily invited to visit the Abbott Laboratories exhibit in Booth B-2. Members of the Abbott medical and detailing staff will welcome an opportunity to discuss newer developments in the antibiotic, anticonvulsant, anesthetic, analgesic, vitamin and other fields.

A. S. ALOE COMPANY
Booths B-24, B-26, B-28

The representatives of the A. S. Aloe Company will welcome their friends at booths B-24, 26, and 28 where they will have on display a representative cross section of their complete line of Surgical, Hospital, and Laboratory equipment and supplies. Featured will be a complete line of government surplus instruments available at the present time — especially selected, fully certified instruments at approximately one half the regular cost.

AMERICAN HOSPITAL SUPPLY CORP.
Booth B-27

The American Hospital Supply Corporation will exhibit the full range of Baxter Parenteral Solutions, and Blood and Plasma Equipment; also the new Anti-Rh Testing Serum that provides an accurate, visible to the eye reading in 2½ minutes, as well as Anti-A and B; and various selected Tomac Products designed to help the Hospital in the performance of its many tasks.

AMES COMPANY, INC.
Booth A-18

Ames Company's representatives will be glad to discuss Decholin, the standard hydrocholeretic agent for the treatment of biliary tract diseases. They will be demonstrating Clinitest and Hematest—simplified tests for the detection of urine-sugar and occult blood.

ARMOUR AND COMPANY
Room 163

THE GORDON ARMSTRONG COMPANY, INC.
Booth D-15

Exhibited here will be the Armstrong X-4 Baby Incubator designed to supply constant, automatically controlled heat and increased humidity for both premature and full term babies, for the administration of oxygen, and as an ambulance for the transportation of babies. It is the only baby incubator that has been tested and approved by Underwriters' Laboratories, Inc., for oxygen therapy; and every X-4 Baby Incubator has the reexamination service marker of Underwriters' Laboratories permanently etched on the name plate.

AYERST, McKENNA & HARRISON, LTD.
Booth E-33

"Premarin," a potent preparation of naturally-occurring, water-soluble equine conjugated estrogens containing sodium estrone sulphate as one of its estrogens will be exhibited here. "Premarin" combines a high degree of potency with convenience of administration and is well tolerated by the patient. It is supplied with the approval of the Research Institute of Endocrinology, McGill University, and is accepted by the Council on Pharmacy and Chemistry of the American Medical Association.

AZNOE'S-WOODWARD BUREAU
Booth C-13

Physicians interested in securing the highly regarded appointments, or employers seeking well qualified Doctors, Diplomates or eligible or other medical personnel, are invited to consult with Aznoe's-Woodward—Booth C-13. This Bureau is now celebrating its fifty-second year of continuous service to the entire medical field.

THE BAKER LABORATORIES, INC.
Booth B-15

The Baker display is built around the six-step approach to optimum infant nutrition which leads to the picture of the happy mother and healthy child. An adjusted protein, two carbohydrates, a modified fat, vitamins, soluble mineral salts and iron, coupled with simplicity of preparation and low cost, provide for complete nutrition and insure cooperation in the home. Baker's Modified Milk, liquid or powder, may be used interchangeably from birth to the end of the bottle-feeding period.

W. A. BAUM CO., INC.
Booth C-32

The KOMPAK Model Lifetime Baumanometer for your bag, and the WALL, STANDBY and 300 MODELS for your office, will all be displayed for your consideration. A complete line of Baumanometers and accessories, including special infants', childs' and leg inflation cuffs, will also be available for your inspection.

BECTON, DICKINSON & CO.
Booth C-3

Besides their complete line of hypodermic equipment, ACE bandages, clinical thermometers and diagnostic instruments, Becton-Dickinson will demonstrate the B-D Vacutainer. This Vacutainer which makes possible a quick, convenient method of blood sampling and produces a measured aseptic sample sealed in glass is ready for shipment to a testing laboratory. The instrument consists of three simple components: evacuated glass tube with rubber stopper, clear plastic syringe-type holder, and double pointed needles.

BEDFORD SURGICAL CO., INC.
Booth E-3

At Booth E-3 a complete cross section of the needs of the physician will be displayed. Completely new equipment will be featured. You are invited to visit this exhibit for a helpful discussion of your equipment problems with competent medical service technicians.

BEECH-NUT PACKING COMPANY
Booth E-28

THE BEST FOODS, INC.
Booth C-22

At their booth, the Best Foods, Inc., is exhibiting Nucoa, the wholesome nutritious vegetable margarine, which contains 15,000 units of Vitamin A to the pound. Also on exhibit are the famous Best Foods—Hellmann's Real Mayonnaise and other Best Foods' products. Miss Elsie Stark, Director of Consumer Education, is in charge of the booth and will welcome questions about the products.

BILHUBER-KNOLL CORP.
Booth B-21

For the latest developments in their "Council-Accepted" products such as Bromural, Dilaudid, Euresol pro capillis, Metrazol, Theocalcin, etc., visit the Bilhuber-Knoll Corporation display in booth B-21. Your discussions of their fine medicinal chemicals will be welcomed. These are prescribed alone or in combinations to meet the needs of the individual patient.

BITUMINOUS COAL INSTITUTE
Booth S-17

The Bituminous Coal Institute will emphasize in its exhibit the safety achievements in the coal industry over the past two decades. What coal means to American economy, how the miner and his family live in the more progressive mining towns, what they do for recreation, the function of the company doctor, etc., will be explained. Some of the wonders of bituminous by-products of which medicinals are important will also be shown.

THE BLAKISTON COMPANY
Booths A-23, A-25

THE BLAKISTON COMPANY will have an attractive new exhibit at Booths A-23 and A-25. New volumes and new editions have been added to the famous Recent Advances Series. Ask to see Beaumont & Dodds, "Medicine"; Cameron, "Endocrinology"; Dyke, "Clinical Pathology"; Stitt, Clough and Branham, "Practical Bacteriology"; Lillie, "Histopathologic Technic"; Smith & Gault, "Essentials of Pathology"; Mettler, "History of Medicine"; Strecker, "Practical Clinical Psychiatry," etc. There will be something new for every specialist.

THE BORDEN COMPANY
Booth D-21

Items in the Borden exhibit will include not only special quality Prescription Products for infant feeding, but also special foods for older children and adults, particularly in the geriatric field. Several new powdered milk foods for well-rounded nutrition will be featured. Borden's 90th year.

JOHN H. BRECK, INC.
Booth A-21

An attractive and educational exhibit is promised visitors by the John H. Breck, Incorporated, Manufacturing Chemists, who will exhibit their special Industrial and Baby preparations. Members will be interested in the showing of these famous and well known preparations which are advertised in various medical publications of the Industrial and Baby fields. Baby Breck Ointment will have a special introductory set up.

BREWER & COMPANY
Booth E-9

Brewer & Company invites physicians to visit its exhibit which will feature a display of some of the products of its Ampul Division, including PYRIDOXINE HYDROCHLORIDE and two of its specialties, GEL-ETS OLEOVITAMIN A 25,000 UNITS and GEL-ETS TRIASYN B. Representatives will be glad to answer any questions concerning these products and arrange for samples and literature to be sent to the physician's office.

BRISTOL LABORATORIES, INC.
Booths E-11, E-13

The BRISTOL LABORATORIES' exhibit at the Interim Session of the American Medical Association will be devoted to the display of penicillin and pharmaceutical products. Qualified representatives will be on hand to assist the medical profession with any inquiries. Literature describing Bristol products will be available.

THE BURDICK CORPORATION
Booth E-15

The Burdick Corporation will exhibit in booth E-15 their complete line of Physical Medicine Equipment. This includes Ultraviolet, Infra-Red Lamps, Short Wave Diathermy, and the Rhythmic Constrictor for the treatment of peripheral vascular conditions. A feature of particular interest will be the new X 85 Diathermy Unit, built to meet F.C.C. regulations.

BURNS CUBOID COMPANY
Booth B-30

When you see the attractive girl pointing to a headline which reads "CUBOID FOOT BALANCERS, California-Made for all the nation" stop for a personal demonstration of the new way to foot comfort. This colorful, lighted Masonite display was created especially for your interim session to call attention to these new, metal free inserts that you have been reading about every month in J. A. M. A. and on the inside cover of HYGEIA.

BURROUGHS WELLCOME & CO., INC.
Booths A-13, A-15

Burroughs Wellcome & Co. (U. S. A.) Inc., will present a series of interesting panels depicting the background and development of two of its most important products—Digoxin and Globin Insulin. A hearty invitation is extended to all to visit this interesting exhibit.

CAMBRIDGE INSTRUMENT COMPANY, INC.
Booth A-26

CAMEL CIGARETTES
Booth P-1

CAMEL Cigarettes will present a dramatic full color review of their recent medical research on smoking, as well as the details of the nationwide survey showing that "More Doctors Smoke Camels Than Any Other Cigarette." Another panel will illustrate the absorption of nicotine in the respiratory tract. Representatives will be present.

CAMERON SURGICAL SPECIALTY CO.
Booth D-7

See the Cameron Cauterodyne for Electrosurgery, Electro-cauterization and Electrocoagulation; Coagulair - Sigmoidoscope; Electro-Diagnostosets; Radiolucent Cannula; Flexible Gastroscopes; Bronchoscopes—Esophagoscopes — Laryngoscopes; Mirror Headlites; Binocular Spectacle Loupe; Magniscope and other Specialties.

CARNATION COMPANY
Booth E-2

Here you will see an attractive display on Carnation Evaporated Milk—"the milk every doctor knows." Some valuable information on the use of this milk for infant feedings, child feeding, and general diet will be presented as well as the method by which Carnation is generously fortified with pure crystalline Vitamin D—400 U.S.P. units per reconstituted quart. Interesting literature will be available for distribution

CHURCH & DWIGHT CO., INC.
Booth D-17

CIBA PHARMACEUTICAL PRODUCTS, INC.
Booth D-33

Ciba Pharmaceutical Products, Inc., invites physicians to visit their exhibit for latest information on PYRIBENZAMINE, the new antihistaminic compound. Also displayed will be PRIVINE HC1, an effective, long lasting nasal vasoconstrictor. Representatives in attendance will be glad to answer any questions which you may have concerning these products and to furnish you with literature and samples.

CLERSITE COMPANY
Booth E-18

COCA-COLA COMPANY
Booth P-4

WARREN E. COLLINS, INC.
Booth D-8

All Convention visitors are invited to Booth D-8 to see and discuss the latest developments in Respiration Apparatus. On display will be the new Benedict-Roth metabolism apparatus, Respiratory Function apparatus, the Drinker-Collins Adult Respirator, the Collins Vitalometer, and the Collins Open-Top Oxyflo Oxygen Tent. Factory representatives will welcome your inquiries.

COLWELL PUBLISHING COMPANY
Booth E-5

Of interest to all physicians is a new line of 8½ x 11 inch (letter size) DAILY LOG history sheets, designed for general practice and most specialties. Adequate indexing and storage of medical records will be demonstrated. The 1948 DAILY LOG for Physicians in both ring bound (flat opening) and post-bound styles may be examined. Questions about medical record procedures will be welcomed.

COMMERCIAL SOLVENTS CORPORATION
Booth A-14

The Commercial Solvents Corporation exhibit will feature among its pharmaceutical products the new Soluble Tablets Crystalline Penicillin C.S.C. which represent a significant advancement in penicillin therapy. Also on display will be the new CSC Permanent Metal Syringe and the CSC Disposable Syringe for the administration of penicillin in oil and wax.

CONTINENTAL X-RAY CORPORATION
Booth B-20

A new orthodiagraphic attachment that outlines the heart to exact size and shape will be featured by the Continental X-ray Corporation for use on most vertical fluoroscopes. It incorporates an entirely new principle of direct electronic writing that produces a sharp, permanent line or index point. Amazingly easy to operate, this attachment is always ready for instantaneous use, yet does not interfere with normal fluoroscopy.

THE CREAM OF WHEAT CORP.
Booth S-5

You won't want to miss this booth where both Enriched 5 Minute and Regular "CREAM OF WHEAT" is on display together with the Wheat Germ "ZING!" Mr. E. R. Shopp in charge of this booth is in position to answer your questions regarding the analysis of Cream of Wheat products or any other questions that may be of interest to the Profession.

CUTTER LABORATORIES
Booth C-16

A complete line of hospital solutions as well as the triple vaccine, Dip-Per-Tet (combined diphtheria, pertussis and tetanus) will be featured by Cutter Laboratories at their booth number C-16. The Western biological laboratories has been a leader in the field of triple vaccine for they pioneered in the development.

DAVIES, ROSE & COMPANY, LIMITED
Booth D-27

Visitors at the Davies, Rose booth will hear about the current Quinidine Sulfate situation, which has been a very perplexing problem during the past few years. Their Tablets of Quinidine Sulfate are alkaloidally standardized, giving the physician assurance of uniformity in dosage.

F. A. DAVIS COMPANY
Booth B-14

New books on display at the Davis booth include: "Reconstructive and Reparative Surgery"—May; "Dermatology in General Practice"—Greenbaum; "Diseases of the Chest"—Judd; "Diseases of the Gallbladder" — Behrend; "Painful Syndromes"—Judovich and Bates; "Arthritis" —Bach; "Urology" — McCrea; "Clinical Tuberculosis"—Goldberg; "Rhinoplasty"—Maliniac; "Pre- and Postoperative Care"—Tourish and Wagner; "Diagnostic Signs"—Robertson; "Gonioscopy"—Troncoso; "Clinical Radiology"—Pillmore; "Cardiovascular Disease"—Stroud; "Acute Medical Disorders"—Murphy; and "Pediatric Therapy"—Litchfield-Dembo.

DAVIS & GECK, INC.
Booth P-2

Davis & Geck, Inc., manufacturers of sterile surgical sutures will present a program of films on surgery. These films, selected from the D&G Surgical Film Library, represent twenty years of research and development in the field of visual education as applied to surgical technique. The Library, which contains films on every approved phase of surgery, is constantly expanded to include new and improved operative procedures.

THE DENVER CHEMICAL MFG. CO., INC.
Booth D-26

Galatest for the instantaneous determination of urine sugar, and Acetone Test (Denco) for the detection of acetone in urine will be exhibited here. You are cordially invited to visit this booth for a demonstration of these "spot tests" for sugar and acetone. Galatest and Acetone Test (Denco) offer advantages of accuracy, simplicity, and economy in routine urinalysis.

DEPUY MANUFACTURING COMPANY
Booth C-9

DePuy Manufacturing Company will exhibit fracture appliances, cervical collars, splints for humerus, forearm, or leg fractures. Special attention will be given to the type of splints for the general practitioner and surgeon. Representatives at the booth will be glad to answer any of your questions.

THE DIETENE COMPANY
Booth B-31

DUKE LABORATORIES, INC.
Booth C-7

At Booth No. C-7 Duke Laboratories will exhibit Elastoplast, the stretchable adhesive surfaced bandage suggested for compression and support; Mediplast, individually wrapped and sterilized, for minor injuries; Nivea Creme, Nivea Skin Oil, and Basis Soap, the Prescribers' Cosmetics.

DUREX PRODUCTS, INCORPORATED
Booth E-17

Durex exhibit will feature Lactikol Jelly and Lactikol Creme, contraceptive preparations accepted by the Council on Pharmacy and Chemistry; Durex diaphragms; the Lactikol Diaphragm Set; several types of diaphragm inserters; and the Durex Sponge Rubber Model. Applicators for Jelly and Cream, including both the ordinary Plunger Applicator and the Metri-Dose Applicator (a new syringe type for measured dosages) will also be shown.

DY-DEE WASH
Booth S-7

The Dy-Dee Wash exhibit features The National Institute of Diaper Services as a leading trade association doing research and maintaining quality control over its members. The use of the new Ozonaire Process of Laundering and Sterilizing used by Dy-Dee Wash in Cleveland and methods of plant sanitation in their plant, are also featured items in the exhibit. The finishing touches given diapers to protect babies will be of interest to every physician and hospital superintendent.

E & J MANUFACTURING CO.
Booth D-9

Latest improvements in automatic resuscitators will be demonstrated by the E & J Manufacturing Company technicians. The wide use of the E & J Resuscitator Inhalator and Aspirator in industry and municipal first aid work makes this exhibit one of the important parts of the technical exhibits. A unique and realistic demonstration of intratracheal resuscitation for desperate cases will be featured.

EASTMAN KODAK COMPANY
Booth C-6

The Eastman Kodak exhibit will feature Eastman X-ray films and supplies to the Radiographic Department plus medical photographic transparencies in full-color and various types of equipment to be used in both black-and-white and full-color medical photography.

EATON LABORATORIES, INC.
Booth D-1

The Eaton booth will display several pharmaceutical preparations of interest to the medical profession, among them Furacin Soluble Dressing containing a new chemotherapeutic agent Furacin (brand of nitrofurazone). This new antibacterial agent was recently accepted for New and Nonofficial Remedies. Representatives will be pleased to discuss these products with all who register at the Eaton booth. Latest professional literature and samples will be available.

J. H. EMERSON COMPANY
Booth B-29

The new Lung Immobilizing Chamber for treating pulmonary tuberculosis by complete bilateral lung rest, without surgery, may be seen in booth B-29. This treatment devised by Barach was discussed in *The Journal* of February 2, 1946. The Emerson Lung Immobilizer has recently been accepted by the Council on Physical Medicine.

ENDO PRODUCTS, INC.
Booth E-19

Endo representatives will be on hand to greet their medical acquaintances and to discuss Endo prescription and ampule specialties. Among the Council-accepted prescription products to be featured are Mesopin—selective gastrointestinal antispasmodic; Estromone—estrogenic therapy; and Norodin—psychomotor stimulant and anti-depressant. Samples and literature will be available for distribution.

EVAPORATED MILK ASSOCIATION
Booth B-11

A new exhibit incorporating dioramas illustrating some of the important uses of evaporated milk will be on display in Booth B-11. You are cordially invited to inspect this exhibit and to register for a free copy of "Infant Feeding with Evaporated Milk." Other publications on the dietary uses of evaporated milk are available and will be on display.

FANCEE FREE MFG. CO.
Booth S-16

Fancee Free Garter Belts, excellent for the mother-to-be or others who must avoid pressure or binding will be displayed in booth S-16. This unique garter belt of flexible elastic prevents pressure on the abdomen since it fits snugly at the waist in back and swings below the abdomen in front. Two snapon satin tabs transform Fancee Free into a combination garter and sanitary belt in a jiffy.

H. G. FISCHER & COMPANY
Booths A-8, A-10

Visitors are cordially invited to visit this FISCHER display and to inspect the new units of FISCHER X-Ray and Electro-Surgical-Medical Apparatus to be shown. Members of the FISCHER staff will be present at all hours to answer questions and to demonstrate unique features of FISCHER design and performance. You will be welcome at FISCHER Booths A-8, A-10.

FOLEY MANUFACTURING COMPANY
Booth A-27

You will be most welcome at booth A-27, where the Foley Food Mill will be on exhibit. This practical kitchen utensil saves much time for the homemaker in preparation of fresh cooked vegetables and fruits for all smooth diets.

GENERAL FOODS CORPORATION
Booth D-28

General Foods will serve caffein-free Instant Sanka Coffee. All doctors will be interested not only for themselves but for their patients, because of the true coffee flavor and convenience. It can be prepared in an *instant* at the office or at home any hour of the day or night—a real cup of coffee without any caffein effect.

GERBER PRODUCTS COMPANY
Booth D-14

GOODMAN-KLEINER CO., INC.
Booth A-28

The Goodman-Kleiner Co., Inc., invites physicians treating marital infertility to witness actual demonstrations of new portable instruments for use in the diagnosis and treatment of female sterility—the Weisman GYNOGRAPH & GYNOGAUGE. The Gynograph, in the office, clinic or hospital, performs singly or simultaneously, carbon dioxide tubal insufflation, hysterosalpingography, or a combined pneumoperitoneum and pelvic visceregraphy under constant manometric observation.

GRUNE & STRATTON, INC.
Booth B-9

Thirty Grune & Stratton books published in 1947 will be shown along with their many established textbooks and monographs. Among their most recent books are Berson's, "Atlas of Plastic Surgery"; Bellak's, "Dementia Praecox"; Stone's "Diseases of the Joints and Rheumatism"; Meigs and Sturgis', "Progress in Gynecology." Also on exhibit will be periodicals published by the British Medical Association, now available through Grune & Stratton who were appointed sole agents for the U. S. Latest issues of the thirteen journals may be inspected.

HAMILTON MANUFACTURING COMPANY
Booths C-21, C-23

HANOVIA CHEMICAL & MFG. CO.
Booths D-23, D-25

Featured at the Hanovia exhibit will be black light for diagnostic purposes, jacketed germicidal ultra-violet lamps for the destruction of air-borne bacteria, new self-lighting therapeutic ultraviolet lamps for body and orificial work, and infrared lamps with a new type element. Your visit will be welcomed.

HARROWER LABORATORY
Booths C-28, C-30

H. J. HEINZ COMPANY
Booth C-14

H. J. Heinz Company is displaying and sampling their glass containers of Strained Foods for infants and Junior Foods especially designed for intermediate feeding. Their representatives would appreciate your recommendations regarding these foods. You are invited to register for "The Nutritive Value of Vegetables," 12th edition, "Nutritional Charts," and "Nutritional Observatory."

PAUL B. HOEBER, INC.
Booth E-1

For display at the first Interim A. M. A. meeting there will be several new Hoeber books of exceptional usefulness to the family physician. Among them will be the new editions of Bierman's PHYSICAL MEDICINE IN GENERAL PRACTICE, Gesell and Amatruda's DEVELOPMENTAL DIAGNOSIS and Mazer and Israel's MENSTRUAL DISORDERS AND STERILITY. The entire list of distinguished Hoeber books will be shown at Booth E-1, as well as advance dummies of important forthcoming publications.

HOFFMANN-LaROCHE, INC.
Booth B-19

The Roche exhibit will be devoted exclusively to their Council-accepted specialty, PROSTIGMIN . The many recognized uses of PROSTIGMIN are always of interest to physicians who are invited to stop at booth B-19. A staff of experienced representatives will be pleased to discuss PROSTIGMIN and other Roche specialties of interest to them.

HOLLAND-RANTOS COMPANY, INC.
Booth C-20

KOROMEX JELLY and KOROMEX CREAM will be featured here. Holland-Rantos Company, Inc., was a "pioneer" of the modern contraceptive technique, so frequently referred to as the Koromex Method. The medical background and clinical use of KOROMEX JELLY dates back to 1925. Medical service representatives will be on hand to discuss with interested physicians the latest data on KOROMEX JELLY and CREAM.

HOSPITAL LIQUIDS
Booth C-12

Hospital Liquids, Inc., will display its line of Intravenous Solutions, Haemovacs, Compliters R.T. Sets, and Coagusol, the brushless surgical instrument cleanser, at booth C-12.

THE HYGEIA NURSING BOTTLE CO., INC.
Booth A-6

You are cordially invited to visit booth 6-A to see the advantages of the new improved 4- and 8-ounce Hygeia Nursing Bottle Unit. Learn why prescribing the Hygeia unit—including bottle, nipple, and cap—will help mothers overcome feeding problems. Representatives will be in attendance.

ILLE ELECTRIC CORPORATION
Booth D-31

Ille Electric Corporation will demonstrate in booth D-31 how the care of infantile paralysis, arthritis, and other disabling conditions can be greatly improved by the use of Hydromassage Subaqua Therapy Tanks. They will also display an improved Mobile Whirlpool Bath, New Mobile Adjustable Stool, and a Mobile Sitz Bath Chair.

INTERCHEMICAL CORPORATION
Booths E-20, E-22

IODINE EDUCATIONAL BUREAU, INC.
Booth A-31

The iodine exhibit calls attention to the place of iodine in surgery, in medicine, and in nutrition. Samples of official U.S.P. and N.F. preparations containing iodine will be shown. Also displayed are iodine preparations which are accepted by the Council on Pharmacy and Chemistry of the American Medical Association. In the nutrition section, emphasis is placed on iodized salt for supplying normal iodine requirements.

JONES METABOLISM EQUIPMENT CO.
Booth S-15

The Jones Metabolism Equipment Company in booth S-15 will exhibit and demonstrate the Jones Waterless MOTOR BASAL and SUPER MOTOR BASAL metabolism units. The exhibit will be under the direction of Mr. Jack Reynolds. Special emphasis is being placed on the demonstration of the SUPER MOTOR BASAL at this meeting, in order to illustrate this unique feature of "two machines in one."

KELLEY-KOETT MFG. CO.
Booths E-12, E-14

KELLOGG COMPANY
Booth C-5

Information concerning the place of ready-to-eat cereals in restricted and normal diets is available at the Kellogg exhibit. Special Diet Pads for bland, high-residue, low calorie, low fat, and low salt diets as well as special Diet Manual and Nutritive Value Chart are available at the Kellogg booth.

KEYSTONE VIEW COMPANY
Booth F-2

The Keystone View Company will demonstrate the new Keystone Occupational Visual Service at Booth F-2. This industrial visual screening test is sold to industries for determining if their employees are visually efficient for their jobs, or if they should be referred for professional care. Industrial physicians are especially invited to inspect this equipment.

KIDDE MANUFACTURING CO., INC.
Booth C-32

The new Kidde-Utero Tubal Insufflator with GASOMETER pressure control will be exhibited here. It requires only small cartridge of Carbon-Dioxide gas; provides diagnostic and therapeutic use of Carbon-Dioxide gas or opaque oil, and Kymographic record of patency test. Also on display will be KIDDE Dry Ice Apparatus used in treatment of superficial skin lesions. This Apparatus is becoming increasingly popular because of it's simplicity.

LEA & FEBIGER
Booths B-8, B-10

You are cordially invited to examine the many new books and new editions featured at the Lea & Febiger exhibit. Of special interest will be such titles as Ballenger's, "Diseases of the Nose, Throat and Ear"; Lewin's, "The Foot and Ankle"; Goldberger's, "Unipolar Lead Electrocardiography"; Donaldson's, "Surgical Disorders of the Chest"; Gifford's, "Ocular Therapeutics"; Boyd's, "Textbook of Pathology"; Burch and Reaser's, "Primer of Cardiology," and others.

LEDERLE LABORATORIES, INC.
Booth C-4

THE LIEBEL-FLARSHEIM CO.
Booth B-23, B-25

The Liebel-Flarsheim Company cordially invites you to stop at booth B-23-25 for examination and demonstration of their BOVIE electrosurgical and other apparatus. Capable representatives will be on hand at all times to answer your questions about physical therapy and electrosurgical apparatus. We hope you will stop by so that we may become acquainted.

ELI LILLY AND COMPANY
Booths D-3, D-5

The Lilly exhibit features new therapeutic developments. Many Lilly products are to be on display; representative literature will be available. Requests will be entertained for reproductions of original illustrations that have appeared in connection with Lilly advertising. Medical service representatives are to be in attendance to aid visitors in every way possible.

LINCOLN LABORATORIES, INC.
Booths B-10, B-12

Lincoln Laboratories' exhibit will consist of a mirrored ensemble similar to the one which attracted so much favorable comment at the Centennial. Lincoln offers for your approval, their complete line of Accepted Aqueous Suspension of Estrogenic Substances in potencies of 10,000, 20,000 and 50,000 I. U. per cc. Professional samples will be available to registrants.

J. B. LIPPINCOTT COMPANY
Booths B-3, B-5, B-7

J. B. Lippincott Company presents an interesting and active exhibit of professional publishing. With the "pulse of practice" centering in an advisory editorial board of active clinicians who constantly review the field, current and coming trends in medicine and surgery are known continually. On the studied recommendations of these medical leaders, Lippincott Selected Professional Books are undertaken. It is upon their knowledge, too, of the outstanding work being done in general practice, as well as the specialties, that men making a very real contribution to medical progress are chosen to author the Lippincott books.

LUZIER'S, INC.
Booth A-20

Luzier's Fine Cosmetics and Perfumes, as advertised in publications of the American Medical Association, will be on exhibit in Booth A-20. The Luzier formulas are selected to suit individual cosmetic requirements and preferences and may be modified to suit "allergies." Luzier officials will be in attendance to explain in detail the nature of this service.

M & R DIETETIC LABORATORIES, INC.
Booth B-33

M & R Dietetic Laboratories, Inc., Booth B-33, will exhibit Similac, a food for infants deprived either partially or entirely of breast milk. Trained representatives will appreciate the opportunity to discuss the merit and suggested application for both the normal and special feeding cases.

THE MACMILLAN COMPANY
Booth A-16

The Macmillan Company will be represented with its entire line of Medical and Public Health publications. There will be several new books as well as information concerning important forthcoming publications. Perhaps of most interest to the general practitioner will be GLOMERULAR NEPHRITIS by Dr. Thomas Addis. Another important forthcoming publication which will have strong appeal because of the widespread interest in the psychological problems of our nation will be Dr. William C. Menninger's PSYCHIATRY IN A TROUBLED WORLD. These are but two of a substantial list of new books which will be of tremendous importance and value to the practitioner of medicine.

THE MAICO COMPANY, INC.
Booth C-10

The Maico exhibit will feature the Maico audiometer and the new model of the Maico Atomeer hearing aid. The Maico Atomeer hearing aid has a flexibility which gives greater meaning than ever before to the range of individual fittings which are available. The Maico representatives will welcome the opportunity of discussing the increasingly important subject of hearing aid fittings with the visiting doctors.

THE MALTINE COMPANY
Booth D-13

F. MATTERN MFG. CO.
Booths A-9, A-11

F. Mattern Manufacturing Company who specialize in X-Ray only will display in booths A-9 and A-11 the very latest in Modern X-Ray Unit Design. Your Inspection and Comparison are invited.

MEAD JOHNSON & CO.
Booths E-21, E-23

Three new Mead products of special interest to general practitioners are: Lonalac for low sodium diets; Protenum for high protein diets; Protolysate for use when for any reason protein food is contraindicated. In addition to these products, there will be a complete display of Mead Products for infant and adult nutrition.

THE MEDICAL BUREAU
Booth F-1

The facilities of The Medical Bureau, an organization serving as counselor in problems of medical personnel to medical schools and universities, public health organizations, hospitals and institutions, group clinics, physicians in private practice and industry are offered here. The records of Diplomates of American Boards, younger physicians interested in obtaining training, also, of administrators, executive and supervising nurses, scientists, laboratory and X-Ray technicians, social workers, and dietitians are available.

THE MEDICAL PROTECTIVE COMPANY
Booths D-10, D-12

The most exacting requirements of adequate liability protection are those of the professional liability field. The Medical Protective Company, specialists in providing protection for professional men, invites you to confer at their exhibit with the representatives there. They are thoroughly trained in Professional Liability underwriting.

THE MENNEN COMPANY
Booth D-19

The Mennen Company will exhibit their baby products—Baby Powder, Baby Soap and Baby Cream; also, their men's products, including Shaving Creams, Skin Bracer, Talcum for Men, Powder and Skin Balm.

MERCK & CO., INC.
Booth B-34

Antibiotics have been chosen by Merck for their display at the First Annual Interim Session of the American Medical Association. Chemical, pharmacological, and medical information will be given. Other fields, medical and nutritional, in which The Merck Research Laboratories are vitally interested include the Amino Acids, the Vitamins, the Sulfonamides, Choline derivatives, and Anesthetic Agents.

THE WM. S. MERRELL COMPANY
Booth C-33

The Wm. S. Merrell Company in booth C-33 will feature Diothane Ointment with Oxyquinoline Benzoate, an improved preparation for applying an anesthetic to areas that require prolonged contact, and where it is desirable to provide a protective antiseptic coating. Of relatively low toxicity, Diothane Ointment with Oxyquinoline Benzoate has established a reputation for safety in clinical use.

(Continued on advertising page 78)

ORGANIZATION SECTION

Official Notes

RESOLUTION PASSED BY THE UTAH STATE MEDICAL ASSOCIATION

For Presentation to the House of Delegates of the American Medical Association, Jan. 5, 1948

WHEREAS, The practice of radiology, pathology and anesthesiology is recognized by the American Medical Association as the practice of medicine; and

WHEREAS, Leading hospital organizations of the United States have recognized this fact; and

WHEREAS, There is a tendency on the part of certain hospital administrators to utilize the profits resulting from the operation of these departments in their institutions; and

WHEREAS, This constitutes exploitation of professional medical services; and

WHEREAS, This is contrary to medical ethics; therefore be it

Resolved, That it is the consensus of the Council that this practice should be condemned; and be it further

Resolved, That the Council of the Utah State Medical Association urge the House of Delegates of the American Medical Association to instruct the Board of Trustees of the American Medical Association to direct the Council on Medical Education and Hospitals to refuse approval for training of residents and interns to any hospital exploiting professional medical services.

GRANTS TO AID CLINICAL RESEARCH

The Committee on Scientific Research of the American Medical Association invites applications for grants of money to aid in research in problems bearing more or less directly on clinical medicine. Preference is given to requests for moderate amounts to meet specific needs. As a rule grants are not made for the purchase of equipment or apparatus of a permanent nature. For application forms and further information, please address the committee at 535 North Dearborn Street, Chicago 10.

Council on Medical Service

FEDERAL FARM LABOR HEALTH PROGRAM LIQUIDATES

The migratory agricultural workers' health program carried on by the Labor Branch of the Production and Marketing Administration through six Agricultural Workers' Health Associations located in different sections of the United States begins liquidation Jan. 1, 1948.

According to information received from the Labor Branch of the U. S. Department of Agriculture at Washington, D. C., Public Law 40, recently enacted, extended authority to carry on the federal farm labor program from July 1 through Dec. 31, 1947 and provided that the program be liquidated by Jan. 31, 1948.

State medical society secretaries and state departments of health in the thirteen states covered by the Midwestern Agricultural Workers' Health Association, Inc., located at 226 West Jackson Boulevard, Chicago 6, were advised by J. A. McElligott, M.D., medical director, that: "Our association was formed to provide medical care for foreign agricultural workers as a war emergency program. Now that the emergency is ended, it will no longer be necessary for our government to import foreign agricultural workers.

"Our association will cease active operation as of Dec. 31, 1947. It is expected that it will take the month of January 1948 to liquidate the association and to pay all outstanding obligations. It is important that all physicians and hospitals who have rendered service for the association present their statements for payment prior to Jan. 31, 1948."

All the physicians and hospitals who billed the association for any services rendered were mailed a "Notice of Liquidation" on Oct. 31, 1947, according to C. B. Hoff, executive director. This notice invited physicians to mail any outstanding bills to the association at once. The statement reads: "Any outstanding authorizations or bills payable by the association should be submitted for payment very promptly. It is not expected that payments can be made from Health Association funds after Jan. 31, 1948."

Any physician who has rendered medical care to any migrant farm worker under the Agricultural Workers' Health Associations' program may well check over his records and mail invoices for unpaid medical services to the association in his region. Failure to get these invoices to the proper health association in time for payment to be made before Jan. 31, 1948 may result in the loss of amounts on delayed billings.

Committee on Rural Medical Service

NATIONAL CONFERENCE ON RURAL HEALTH

The third annual meeting of the National Conference on Rural Health will take place at the Palmer House, Chicago, Friday and Saturday, February 6 and 7. In line with the purpose of the conference, to discuss ways and means of improving rural medical service, the following program has been prepared:

FRIDAY MORNING

9:00 A. M. *Registration*
Red Lacquer Room

9:45—9:55 A. M. *Purpose of Conference*
F. S. CROCKETT, M.D., Chairman, Committee on Rural Medical Service, American Medical Association

9:55—10:00 A. M. *Address of Welcome*
GEORGE F. LULL, M.D., Secretary and General Manager, American Medical Association

10:00—10:30 A. M. *The Health Problems of the Rural Child*
LEE FORREST HILL, M.D., Past President, American Academy of Pediatrics, Des Moines, Iowa
MRS. CHAS. W. SEWELL, Administrative Director, the Associated Women of the American Farm Bureau Federation, Chicago

10:30—11:10 A. M. *Study of Child Health Services*
JOHN P. HUBBARD, M.D., Director, Child Health Studies, American Academy of Pediatrics, Washington, D. C.
KATHERINE BAIN, M.D., Director, Division of Research in Child Development, U. S. Children's Bureau, Washington, D. C.
HENRY G. PONCHER, M.D., Head, Department of Pediatrics, University of Illinois School of Medicine; Chairman, Illinois Child Health Studies, American Academy of Pediatrics, Chicago

11:10—11:20 A. M. *Intermission*

11:20—12:00 A. M. *Rural Youth and World War II*
MAURICE H. FRIEDMAN, M.D., Washington, D. C.
Open Discussion

12:00—12:30 P. M. *Child Psychology*
MARGARET W. GERARD, M.D., Institute for Psychoanalysis, Consultant for the Illinois Children's Home and Aid Society, Chicago

2:00—3:10 P. M. *Rural Public Health Organization*
Leader:
MRS. GLADYS TALBOTT EDWARDS, Director of Education, Farmers Educational and Co-operative Union of America, Denver
FLORENCE R. SABIN, M.D., Chairman, Interim Board of Health, Denver
LON W. MORREY, D.D.S., Editor, *Journal of American Dental Association*, Chicago
Open Discussion

3:10—3:30 P. M. *Olmstead County Child Health Project*
FLOYD M. FELDMAN, M.D., Director, the Rochester-Olmstead County Health Unit, Rochester, Minn.

3:30—4:30 P. M. *Rural Youth Looks at Health*

Leader:

EDWARD H. MERTZ, Executive Secretary, Farmers Educational Foundation, Denver
MISS MARTHA KOHL, Young Cooperators, the National Cooperative Milk Producers Federation, Corfu, N. Y.
MISS BETTY CHANDLER, Youth Committee, Farmers Educational and Cooperative Union of America, Jamestown, N. D.
ROBERT MCCOY, Youth Committee, the National Grange, New Vienna, Ohio
MISS RUTH PARSONS, Youth Committee, American Farm Bureau Federation, Fowlerville, Mich.

Open Discussion

SATURDAY MORNING

9:30—10:50 A. M. *Rural School Health Program*

Leader:

G. F. MOENCH, M.D., Director, Hillsdale County Health Department; Chairman, National Advisory Committee, Health and Summer Round-up for Parent-Teachers Association, Hillsdale, Mich.

Health Education:

JOSEPH W. FICHTER, Master, Ohio State Grange, Columbus

School Lunch Program:

MRS. J. LANING TAYLOR, Director, Educational Department, the National Cooperative Milk Producers Federation, Washington, D. C.

Community Cooperation:

DEAN F. SMILEY, M.D., Consultant on Health and Fitness, Bureau of Health Education, American Medical Association, Chicago

Open Discussion

Summary:

FRANK W. PECK, Managing Director, the Farm Foundation, Chicago

10:50—11:00 A. M. *Intermission*

11:00—12:30 P. M. *Medical Service in Rural Areas*

Leader:

JAMES R. MCVAY, M.D., Chairman, Council on Medical Service, American Medical Association, Kansas City, Mo.

Woman's Auxiliary:

MRS. ORA LIGHT DYKES, Chairman, Home Economics Committee of the National Grange, Murfreesboro, Tenn.
MRS. EUSTACE A. ALLEN, President, Woman's Auxiliary, American Medical Association, Atlanta, Ga.

Hill-Burton Program:

VANE M. HOGE, M.D., Medical Director, Division of Hospital Facilities, U. S. Public Health Service, Washington, D. C.

Pediatric Service:

RALPH V. PLATOU, M.D., Head, Department of Pediatrics, the Tulane University School of Medicine, New Orleans

Health Councils:

H. B. MULHOLLAND, M.D., Member, Committee on Rural Medical Service, American Medical Association, Charlottesville, Va.

Open Discussion

Summary:

RANSOM E. ALDRICH, Chairman, Medical Care Committee, American Farm Bureau Federation, Jackson, Miss.
CLIFFORD G. GRULEE, M.D., Secretary and Treasurer, American Academy of Pediatrics, Evanston, Ill.

1.00 P. M. *Luncheon.*

HONORABLE JOSEPH H. BALL, United States Senator, Minnesota
EDWARD L. BORTZ, M.D., President, American Medical Association, Philadelphia

Coming Medical Meetings

American Medical Association Interim Session, Cleveland, Jan. 5-8. Dr. George F. Lull, 535 N. Dearborn St., Chicago 10, Secretary.

Annual Congress on Industrial Health, Cleveland, Jan. 5-6. Dr. Carl M. Peterson, 535 N. Dearborn St., Chicago 10, Secretary.

American Academy of Allergy, St. Louis, Hotel Jefferson, Dec. 15-17. Dr. Theodore L. Squier, 425 E. Wisconsin Ave., Milwaukee 2, Secretary.

American Academy of Orthopaedic Surgeons, Chicago, Palmer House, Jan. 24-29. Dr. Harold B. Boyd, 869 Madison Ave., Memphis, Tenn., Secretary.

American Society for Surgery of the Hand, Chicago, Jan. 23-24. Dr. Joseph H. Boyes, 1401 S. Hope St., Los Angeles 15, Secretary.

Southeastern Allergy Association, Richmond, Va., Jefferson Hotel, Jan. 17-18. Dr. Katharine B. MacInnis, 1515 Bull St., Columbia 49, S. C., Secretary.

Washington Letter

(From a Special Correspondent)

Dec. 11, 1947.

Shortage of Penicillin Expected to Become Worse

Dr. Henry Welch of the penicillin division, Food and Drug Administration, revealed in New York that the national shortage of penicillin will become worse as winter infections increase. The shortage was described as "uncomfortable" rather than serious, and it was not expected that the shortage would prevent any person needing the drug from getting it. There are fourteen basic manufacturers of the drug, and Dr. Welch described it as unfortunate that no new companies have indicated a desire to manufacture penicillin.

Physical Measurement of American Population Proposed by Smithsonian Curator

Dr. T. Dale Stewart, Smithsonian curator of physical anthropology, proposed that the government sponsor a measurement survey of the American population to ascertain physical trends. In his annual report he said that the survey would be primarily anthropologic but would be justified economically by its value to clothing and furniture design "and other things dependent on body size." He said it was impossible to detect through available measurements any trend from the American melting pot toward a distinctive "American type."

Voluntary Food Conservation to Continue

President Truman instructed the Cabinet Food Committee to intensify the voluntary food conservation program. Administration spokesmen announced that the food emergency will continue at least until the next harvest. They were Secretary of Agriculture Anderson, Secretary of Commerce Harriman and Acting Secretary of State Lovett. Recipes featuring most nutritious but plentiful and least expensive foods will be distributed by home economics experts of the Department of Agriculture.

Search for Causes and Cures of Heart Disease

Oscar E. Ewing, federal security administrator, informed state and territorial health officers meeting here that the United States lags in finding the causes and cures of heart disease. Mr. Ewing said that efforts are being made to increase cardiovascular research. Attention is being given to needs of children with rheumatic fever, through the State Crippled Children program. He revealed that a cardiovascular unit has been established by the State Relations Division of the U. S. Public Health Service. Through it and in cooperation with the new epidemiologic unit a control program for a typical community will be established.

National Foundation for Infantile Paralysis Planning Tenth Birthday

Basil O'Connor, president, National Foundation for Infantile Paralysis, will be principal speaker at the observance of the tenth anniversary of the organization on January 9 in the Statler Hotel, Washington, D. C. More than a thousand guests have been invited to attend. Mr. O'Connor will speak on "An American Concept; A Decade of Doing," reviewing work of the foundation in research, education and epidemic aid.

Two Million Estimated to Be Afflicted with Diabetes

Dr. Elliott P. Joslin, medical director, Baker Clinic for Diabetics at New England Deaconess Hospital, Boston, told the conference of the Diabetes Association of the District of Columbia that there are around two million victims of the disease in the United States. Dr. Joslin based this estimate on a U. S. Public Health Service survey in Oxford, Mass. Also on the program was Dr. Charles H. Best, co-discoverer of insulin, who said that there are many problems yet to be solved to improve use of the drug.

Naval Observatory Discussed as Site of Medical Center

The Naval Observatory grounds are receiving comment as the site of the proposed $20,000,000 hospital center, planned to replace present Garfield, Emergency and Episcopal Eye, Ear and Throat hospitals. Designs for the new hospital will be ready for submission to Congress in January. Funds for the project were voted last year and a nine story structure with parking grounds for a thousand cars is projected.

GOVERNMENT SERVICES

ARMY

SYMPOSIUM ON MILITARY PHYSIOLOGY

Representatives of nine Army, Air Force, and Navy laboratories discussed their research programs in a symposium on "Military Physiology" at the Army Medical Center, Washington, D. C., December 4-6. The second day was devoted to research in respiratory physiology now being conducted with military support at ten leading universities. On the third day physiologic research conducted by other government agencies and civilian laboratories was discussed. The symposium constituted a regional meeting of the American Physiological Society.

MEDICAL MEETING IN KOREA

About a hundred Army Medical Corps officers attended the monthly meeting November 19 at the 377th Station Hospital, APO 235, in Korea. Among those in attendance were Col. John C. Fitzpatrick, deputy surgeon, Far East Command, who was in Korea at the time on an inspection trip. A highlight of the meeting was an address by Dr. Philip Jaisohn, a graduate of George Washington University School of Medicine, Washington, D. C., who many years ago was an Army contract surgeon and was associated with such well known Army officers as Leonard Wood, Walter Reed, George Sternberg and George Greenleaf. Dr. Jaisohn after an absence of fifty years has returned to Korea as special advisor to Lieut. Gen. John R. Hodge, commanding general of the U. S. Army Forces in Korea. Dr. Jaisohn's address on "Medical Reminiscences" was received with great interest. Several Korean physicians attended the meeting. The next meeting will be at the 34th General Hospital, APO 1054, on December 17. Among others Capt. James Compton, M. C., chief of medical service, 377th Station Hospital, read a paper on "New Drugs and Their Uses." A bus met the train from Pusan and transported visiting officers to the hospital, where breakfast was served; it returned them to the station after the buffet dinner and the social gathering in the evening.

FOOD INSTITUTE ENLARGES STAFF

During November thirteen research scientists and other professional personnel were added to the staff of the Quartermaster Food and Container Institute for the Armed Forces in Chicago, in order to advance research on foods, rations and containers and to assist the Quartermaster Corps in its liaison with universities, industry and government agencies. Among the new members are bacteriologists, biologists, chemists, food technologists and industrial specialists; also a librarian and an artist-illustrator. This organization took part along with other organizations in the research which was reported in THE JOURNAL, November 22, page 757, entitled "White Bread and Epilepsy in Animals."

Lieut. Col. William B. Jackson of Los Angeles assumed command of the Technical Training Division of the Quartermaster Food and Container Institute in November. He will administer an extensive program for advanced training of personnel in subsistence activities. Colonel Jackson, a graduate of the University of Southern California, in civil life was an industrial engineer. He served in this country and in the Philippines in the recent war and was awarded the Legion of Merit. Though separated from the Army in 1946 he has been recalled to active duty as a member of the Regular Army.

NAVY

REACTIVATE MEDICAL RESERVE DIVISIONS

The Navy Department has authorized, under the general plan for reactivation of the volunteer reserve component of the medicorps, twenty-two medical divisions for the Fourth Naval District, comprising the states of Pennsylvania and Delaware and the lower half of New Jersey. Each medical division will have a quota of seventy-five reserve medical officers, fifteen specialists in allied medical sciences, fifty nurses, and two hundred fifty hospital corpsmen. The divisions will be established in areas to accommodate the largest numbers of personnel, with special reference to medical centers and educational institutions. Each volunteer medical division will be under the direction of an inactive medical reserve officer, and the mission of the division will be to provide adequately trained personnel for active duty in event of a national emergency.

The Commandant of the Fourth Naval District announces that the following U. S. Naval Reserve medical divisions are now in the process of activation:

Location	Medical Officer in Command
Pittsburgh	Capt. W. S. Nettrour (MC), U. S. N. R.
Bradford, Pa.	Capt. J. L. Waterman (MC), U. S. N. R.
Philadelphia (Temple University School of Medicine)	Commodore R. A. Kern (MC), U. S. N. R.
Philadelphia (Germantown Hospital)	Capt. F. S. Schofield (MC), U. S. N. R.
Camden, N. J.	Capt. W. A. Crist (MC), U. S. N. R.
Philadelphia (Graduate Hospital, University of Pennsylvania)	Capt. T. E. Orr (MC), U. S. N. R.
Easton, Pa.	Capt. G. A. Pillmore (MC), U. S. N. R.
Bryn Mawr, Pa.	Capt. F. R. Robbins (MC), U. S. N. R.
Philadelphia (Hahnemann Medical College and Hospital)	Capt. E. H. Dickinson (MC), U. S. N. R.
Pottsville, Pa.	Capt. J. W. Jones (MC), U. S. N. R.

Interested naval reserve medical corps personnel in the Fourth Naval District should direct their correspondence to the Commandant, Fourth Naval District, Attention: Director of Naval Reserve, U. S. Naval Base, Philadelphia 12.

NAVY AWARDS AND COMMENDATIONS

Captain George Marshall Lyon

The President has presented the Gold Star in lieu of the second Legion of Merit to Capt. George Marshall Lyon (MC), U. S. N. R. The citation read in part as follows: For exceptionally meritorious conduct in the performance of outstanding services to the government as Safety Officer for Joint Task Force One during operation Crossroads from Jan. 11 to Nov. 1, 1946. Responsible for the preparation of the safety plan for the Task Force, he also continually advised the Task Force Commander as to safety measures for protection against normal and abnormal hazards incident to the detonation of two atomic bombs and the inspection of target ships. The adequacy and thoroughness of the safety measures prescribed by Captain Lyon and carried out under his general supervision were evidenced by the safety record achieved during the operation. As training officer for the Radiological Safety School established by the Task Force Commander, Captain Lyon contributed to the success of the program and to the beneficial effects extending to the post-Crossroads activities of the Army and Navy in the problem of radiologic safety. His performance of an exacting assignment reflects the highest credit on the United States Naval Service. Dr. Lyon graduated from Johns Hopkins University School of Medicine in 1920 and entered the naval service in April 1942.

PERSONAL

Rear Admiral Clifford A. Swanson, the Surgeon General, addressed the Harvard Club on November 29 and the Clinical Club December 2, in Washington, D. C.

Twelve medical officers of the Navy were assigned to attend, December 1 to 5, a seminar in Navy Public Relations in the Office of Public Relations, Navy Department, Washington, D. C.

Medical News

(Physicians will confer a favor by sending for this department items of news of general interest; such as relate to society activities, new hospitals, education and public health. Programs should be received at least two weeks before the date of meeting.)

CONNECTICUT

Personal.—Dr. William H. Horton of Wendel, N. C., was recently appointed medical director of the Connecticut State Public Welfare Department, succeeding Dr. Philip W. Fenney, who has resigned to accept a government position at Staten Island, N. Y. Dr. Horton is a graduate of the Boston University School of Medicine, 1940.——Dr. John F. Fulton, professor of physiology, Yale University School of Medicine, New Haven, gave the Heath Clark Lectures at the London School of Hygiene and Tropical Medicine, London, England, on the general subject, "Aviation Medicine in Its Preventive Aspects: An Historical Survey." Dr. Fulton, the biographer of Harvey Cushing, is chairman of the National Research Council committee on safety in flight.

ILLINOIS

Laboratory Tests Pass Million Mark.—During the year ending June 30 a milestone was passed in the history of public health laboratory service in Illinois. According to statistics provided in a recent report of the division of laboratories, for the first time in a twelve month period the number of examinations performed in the department's diagnostic laboratories, located at Carbondale, Champaign, Chicago, East St. Louis and Springfield, passed the million mark. Of the examinations performed during that year, 986,478 were on specimens submitted for the purpose of detecting communicable diseases, while 14,984 were tests of milk and samples of water. About two-thirds of all diagnostic examinations performed in the laboratories were for evidence of syphilis. Gonorrhea, with 200,780 tests, was responsible for the second highest number of examinations and typhoid and other enteric diseases third with a total of 34,034 tests. Tuberculosis was responsible for 29,952 tests and undulant fever for 24,160. The tests for diphtheria, tularemia and rabies totaled 14,601.

Facilities for Treatment and Diagnosis of Syphilis.—The state director of public health, Dr. Roland R. Cross, calls attention to the facilities maintained by the state department of public health for the diagnosis and treatment of syphilis. To hasten the cure of such patients, the department has made arrangements with twenty-three community hospitals located throughout the state for the provision of rapid-treatment facilities. Any person suffering from infectious syphilis who is unable to pay for treatment may be sent to these hospitals at state expense. The department of public health also maintains thirty-one clinics throughout the state where any one may go for a diagnosis of venereal disease. Treatment will be provided for those who are unable to pay, while those who can pay will be referred to private physicians for treatment if found infected. The department provides laboratory services for the aid of physicians in detecting and diagnosing cases of syphilis. More than half a million serologic tests for syphilis are performed in these laboratories each year.

Chicago

Tumor Institute Receives Fund Honoring O'Brien.—A fund commemorating the late Howard Vincent O'Brien and totaling $6,000 was turned over to the Chicago Tumor Institute for research on cancer November 11 at a meeting of the Jennie Rubinstein Memorial Association. Mr. O'Brien, well known columnist of the *Chicago Daily News*, died of cancer in October in Evanston Hospital.

The Berkelhamer Scholarships.—The first of the Ralph C. Berkelhamer Scholarships at the University of Illinois have been awarded to Leslie T. McClinton and Robert H. Kass, junior students at the University of Illinois College of Medicine. The scholarships of $100 each were established by the Berkelhamer family in memory of Dr. Ralph C. Berkelhamer, who died on a Japanese prison ship sunk in the South China Sea in October, 1944. Students who have completed at least one year in the College of Medicine are eligible for the scholarships.

Dr. Jenkinson Heads Department at Northwestern.—Dr. Edward L. Jenkinson, Chicago, senior director of the department of radiology of St. Luke's Hospital and president of the American Board of Radiology, was given the additional appointment November 1 of chairman of the department of radiology in the Northwestern University Medical School. He succeeded Dr. James T. Case, head of the division for the past thirty-two years, who has retired and is now professor emeritus of radiology. Dr. Jenkinson, a member of several radiologic societies, received his medical degree from St. Louis University School of Medicine, St. Louis, 1915. He served his internship and residency at St. Luke's Hospital and did graduate work in both Germany and France.

Society News.—Members of the Institute of Medicine were invited by the Odontographic Society of Chicago to hear Dr. William H. Sheldon, New York, speak on "Recent Development in Constitutional Research" at a meeting at College Hall, University Club, December 8.——The North Side Branch of the Chicago Medical Society December 4 was addressed by Dr. Ovid O. Meyer, professor of medicine, University of Wisconsin Medical School, Madison, on "Anticoagulants in Cardiac and Vascular Diseases" and by Dr. Karl P. Link, professor of biochemistry, University of Wisconsin, on "The Anticoagulant Dicumarol." At this meeting certificates of membership in the Fifty Year Club of the Illinois State Medical Society were awarded to Drs. Otho F. Ball, Leon F. Heldring-Fabricius, Paul F. Morf, Charles H. Parkes, Edwin W. Ryerson and F. E. Pierce.

INDIANA

State Board Appoints Investigators.—The Indiana State Board of Medical Registration and Examination has hired two investigators to collect evidence against violators of the Medical Practice Act. For twenty years the state has been without funds to enforce the Medical Practice Law, but the 1947 general assembly passed the Annual Registration Law to provide the board with money for enforcement. The registration law has supplied the board with a list of licensed practitioners and with the machinery to prosecute quacks.

Monthly Seminars in Evansville.—A graduate study program will be undertaken by the Vanderburgh County Medical Society, Evansville, in cooperation with the Indiana University School of Medicine beginning in January. A course of study has been outlined by the university, and the classes will be conducted by members of the medical society. Faculty members of the medical school will hold monthly seminars in Evansville as part of the program. Doctors in the tristate area are showing great interest in the program.

MARYLAND

Rheumatic Fever Association.—The Maryland Rheumatic Fever Association was incorporated last June after close planning in cooperation with the Medical and Chirurgical Faculty of Maryland, state and Baltimore health departments and Johns Hopkins School of Hygiene and Public Health, Baltimore. The new corporation will carry on a continuing survey of rheumatic fever in Maryland and elsewhere; assist in developing and maintaining clinics, schools, hospital-schools, camps and other means of treating or helping persons afflicted with rheumatic fever; promote and subsidize research; disseminate information to the public; act as a coordinating body to bring together agencies, facilities and funds for the study and treatment of rheumatic fever, and conduct educational programs among patients, their families and the general public.

MASSACHUSETTS

Nye Memorial Fund.—The American Cancer Society, Inc. (Massachusetts Division) announces that the Robert N. Nye Memorial Fund is in excess of $2,245. Dr. Nye, who died September 10, was the former editor of the *New England Journal of Medicine* and of *War Medicine*.

MINNESOTA

Dr. Watson Lectures in Boston.—Dr. Cecil J. Watson, professor of medicine at the University of Minnesota, served as physician in chief, pro tempore, at the Peter Bent Brigham Hospital, Boston, October 26 to November 1. While there he delivered the E. Stanley Emery Jr. Memorial Lecture on "Porphyria and Porphyrinuria: An Enlarging Concept of the Porphyrins in Clinical Medicine."

Personal.—Professor Arnold Jirasek, department of surgery, Charles University, Prague, addressed the neurosurgical staff of the Mayo Foundation in Rochester October 27 on the development of neurosurgery in Czechoslovakia. Dr. Jirasek was touring neurosurgical centers of the East, Middle West and Canada under the auspices of the Rockefeller Foundation.——Dr. William F. Braash, Rochester, addressed the Hollywood Academy of Medicine in California, November 13, on "Nephroptosis and Its Treatment."

NEW YORK

New Laboratory Service.—The bacteriology department of Rochester General Hospital has made available to area physicians antistreptolysin titration as a routine procedure. This laboratory method aids in determining recent invasion of the body with group A beta-hemolytic streptococci and in the diagnosis of rheumatic fever.

Statewide Nutrition Survey.—The state food commission, in cooperation with Cornell and Harvard universities and the state department of health, will conduct a two month statewide nutrition survey in conjunction with the current emergency food and nutrition program. The objectives are to determine how the food commission, recently appointed by Governor Dewey, can best serve the public and to provide data from which plans can be formulated for a long term nutrition program for the state.

Industrial Health Teaching Day.—The Medical Society of the County of Rensselaer, the state medical society and the New York State Department of Health presented an industrial health teaching day program at the Masonic Temple Building, Troy, December 11 at 2 p. m. and extending through the evening. Subjects on the afternoon program were "Relation of Trauma to Disease," "Evaluation of Disability" and "Industrial Dermatoses." In the evening Dr. Paul Reznikoff, New York, spoke on "Blood Dyscrasia Produced by Industrial Exposures." The annual dinner meeting of the county society was held at 6:30 p. m.

Dr. Lawrence Goes to University of California.—Dr. John S. Lawrence, associate professor of medicine, University of Rochester School of Medicine and Dentistry, where he has been on the faculty eighteen years, has resigned to become professor of medicine and chairman of the department at the University of California, Los Angeles. He will join Dr. Stafford L. Warren, who became dean of the school last February after serving on the Rochester faculty for twenty-one years. Dr. Lawrence is a graduate of the University of Virginia Department of Medicine, Charlottesville, 1921. Last summer Dr. Lawrence visited Japan as one of the special consultants of the Atomic Casualties Committee, National Research Council.

New York City

Glaucoma Clinic.—A Glaucoma Clinic has been established in the Ophthalmological Service of Montefiore Hospital for Chronic Diseases. Although cases in all stages that are eligible for clinic care will be accepted, the hospital is especially interested in early cases. Hospitalization will be provided when necessary, subject to the policies of the hospital. Appointment may be made by calling the hospital.

New Building for Cancer Clinic.—The new building of the Kate Depew Strang Prevention Clinic, a unit of Memorial Hospital Center, was opened November 12. The new building is to house facilities for detection of cancer in men and women. A clinic for boys and girls 14 to 21 years of age is to be opened January 1, according to Dr. Elsie S. L'Esperance, director. Function of the clinics is to periodically examine apparently well persons.

Dr. Gutman to Succeed Dr. Seegal.—Dr. David Seegal, organizer of the Columbia University College of Physicians and Surgeons' research program on long term diseases, has completed his work at the university and will organize a teaching and research program for the new Maimonides Hospital in Brooklyn. Succeeding Dr. Seegal at the Goldwater Memorial Hospital, where his Columbia University work has been carried on for eleven years, will be Dr. Alexander B. Gutman, associate professor of medicine. The research program at the hospital has been supported by the people of New York City, the Rockefeller Foundation, the Josiah Macy Junior Foundation, the Albert and Mary Lasker Foundation, the Research Grants Division of the National Institute of Health, the U. S. Public Health Service, the Office of Scientific Research and Development and others. Attention has been focused on heart diseases, arteriosclerosis and high blood pressure, nephritis, diabetes, arthritis and asthma.

Advisory Board for Industrial Medicine Institute.—A Medical Advisory Committee has been appointed for the new Institute of Industrial Medicine, Department of Preventive Medicine, New York University-Bellevue Medical Center. The committee is as follows: Dr. Anthony J. Lanza, director of the institute, chairman; Dr. James M. Carlisle, medical director, Merck & Co., Inc.; Dr. Arthur G. Cranch, director, industrial toxicologic department, Union Carbide & Carbon Corporation; Dr. David H. Goldstein, New York, medical director, *New York Times*; Dr. Willard F. Machle, New York, industrial consultant; Dr. Melvin N. Newquist, medical director, the Texas Company; Dr. Robert C. Page, medical director, Standard Oil Company (New Jersey); Dr. Kenneth C. Peacock, chairman, Committee on Industrial Medicine, New York County Medical Society; Dr. Leo Price, medical director, Union Health Center; Dr. John J. Wittmer, assistant vice president, Consolidated Edison Company, Ind.; William P. Yant, Sc.D., vice president in charge of research, Mine Safety Appliance Company, Pittsburgh, and Dr. Henry E. Meleney, Hermann M. Biggs professor of preventive medicine and chairman of the department of preventive medicine of the university.

TEXAS

Refresher Course in Cardiology.—Baylor University College of Medicine, Houston, is offering a refresher course in cardiology January 5-8 in the college auditorium. The guest speakers will be Drs. Tinsley R. Harrison, Dallas; Louis N. Katz, Chicago, and George R. Herrmann, Galveston. Tuition will be $25.

University Appointment.—Dr. Fé del Mundo, professor of pediatrics, University of Santo Tomas, and director of the Maternity and Children's Hospital, Manila, P. I., has been appointed visiting lecturer in pediatrics at the University of Texas Medical Branch, Galveston, and will spend a month in residence teaching the care of infants and children in the tropics.

VIRGINIA

State Medical Election.—At the annual meeting of the Medical Society of Virginia in Roanoke in October Dr. Guy Fisher, Staunton, succeeded to the presidency, and the following were elected: Dr. Marvin P. Rucker, Richmond, president-elect; Miss Agnes V. Edwards, Richmond, executive secretary-treasurer. The 1948 annual meeting will be held in Richmond.

Create Memorial Lectureship.—A memorial lectureship created by friends of the late Capt. Lewis T. Stoneburner III, Richmond, has been accepted by the board of visitors of the Medical College of Virginia, Richmond. A graduate of the Medical College in 1937, Dr. Stoneburner was reported lost over the Mediterranean in October 1943, while on a mission in connection with his duties as a staff member of the 45th General Hospital in North Africa.

WEST VIRGINIA

Fifty Year Practitioners Honored.—Dr. Robert W. Love of Moorefield and Dr. Wilbert G. Drinkwater, Gormania, were honored at the regular monthly meeting of the Potomac Valley Medical Society October 31 in Burlington on completing over fifty years' practice. Each was presented with a gold pen and pencil set. At a short business meeting Dr. Love was elected president for 1948.

Personal.—Dr. Walter E. Vest, Huntington, was reelected president of the Public Health Council at a meeting held in Charleston, October 2. He has been a member of the council since 1933 and has served as its president since 1937.——Dr. Paul H. Harmon, Huntington, medical director of the Morris Memorial Hospital for Crippled Children, Milton, has resigned but will continue as a member of the staff of the hospital.

Society News.—Dr. George Evans of Clarksburg was the guest speaker at the regular quarterly dinner meeting of the Central West Virginia Medical Society held September 25 at the Country Club in Buckhannon. His subject was "Spontaneous Pneumothorax." The paper was illustrated by slides. At the business meeting following the scientific program, the following officers were elected for 1948: John E. Echols, Richwood, president; William W. Huffman, Gassaway, vice president; John M. Cofer, Bergoo, secretary-treasurer.

County Society to Publish Bulletin.—Dr. Paul I. Hoxworth, attending surgeon at several Cincinnati hospitals, was the guest speaker at the regular monthly meeting of the Kanawha Medical Society, held November 11 at the Daniel Boone Hotel in Charleston. His subject was "Surgery of the Colon." At the business meeting which followed the scientific program, Dr. Paul H. Revercomb, Charleston, was elected president for the ensuing year. Other officers elected were Dr. Henry M. Escue, Charleston, vice president; Dr. John W. Hash, Charleston, secretary-treasurer, and Dr. Archer A. Wilson, Charleston, member of the board of censors. Dr. George F. Grisinger, Charleston, chairman of the advisory committee, recommended that a monthly bulletin to be known as *KMS Bulletin* be sponsored by the society. The recommendation was accepted and Dr. Escue was named editor in chief.

GENERAL

Appoint Statistical Director for Blood Program.—George W. Hervey, Sc.D., Arlington, Va., has been appointed director of the statistical division of the National Blood Program of the American Red Cross. He will institute modern procedures for the collection and analysis of data concerning blood collection and fractionation. He conducted surveys for the War Department Manpower Board during the war. He is assigned to the National Blood Program's staff offices headed by Dr. Ross T. McIntire, Washington, D. C.

WHO Fellowships Awarded.—The World Health Organization reported November 1 that one hundred and ninety-two fellowships for the current year have been awarded. Virtually all branches of medicine and public health are represented among the doctors and others selected to study at world centers under a $1,500,000 grant from funds of the United Nations Relief and Rehabilitation Administration for field services. Among the 1947 fellows, Poland is sending fifty-four, China forty-two and Yugoslavia thirty-five. An additional two hundred fellows will continue this work under another grant for 1948.

New England Epilepsy League.—Announcement is made of the incorporation of the New England Epilepsy League, a nonprofit self-supporting affiliate of the American Epilepsy League, Inc. The program of the league is primarily one of education and referral. Medical reprints and articles written on problems faced by the epileptic, his family and friends are available to all professional and lay members of the New England Epilepsy League. The league desires to bring information about new methods of treatment to the physicians of New England. Communications should be addressed to Miss Esther C. Walther, Director, New England Epilepsy League, Inc., 50 State Street, Boston 9.

Five Women Honored for Cancer Work.—Five "women of achievement," who were selected by the American Cancer Society for outstanding work in the field of cancer, were awarded bronze medallions by Dr. Edward M. Bernecker, New York commissioner of hospitals, at the twenty-fourth annual Women's International Expositon of Arts and Industries, New York, November 3. Dr. Elise L'Esperance, founder of the Women's and Children's Infirmary of New York, for medical research; Edith H. Quimby, Sc.D., Columbia College of Radiology, for scientific research; Mrs. Viola Smith, field worker for the American Cancer Society, for educational field work; Mary Roberts Rinehart, writer, for courage in sharing her experience as a cured cancer victim with the women of America, and Representative Edith Nourse Rogers, Massachusetts, for legislation.

International Congresses on Tropical Medicine and Malaria.—The fourth International Congress on Tropical Medicine and the fourth International Congress on Malaria will meet jointly in the United States May 10-18, 1948, in Washington, D. C. Invitations have been extended to sixty governments. Other persons and institutions interested in the subject are invited to participate on payment of a registration fee of $10. The meetings are officially sponsored by the government of the United States, and the organization and planning is being carried on by the Department of State in cooperation with federal agencies and national scientific societies. Communications should be addressed to the Executive Secretary, Fourth International Congresses on Tropical Medicine and Malaria, Division of International Conferences, Department of State, Washington 25.

Research on Schistosomiasis.—Dr. C. K. Chu, director, National Institute of Health of China, recently arrived in New York with two bamboo vials of schistosoma snails, which he presented to Dr. Henry E. Meleny, professor of preventive medicine at New York University Medical College, who is engaged in research on schistosomiasis. The snails came from a rice paddy near Soochow, under arrangements with the U. S. Public Health Service and the American Bureau for Medical Aid to China. During the war the Office of Scientific Research and Development made grants to three universities in the United States to conduct research on schistosomiasis. At the end of the war the grants were taken over by the U. S. Army and have been continued by the U. S. Public Health Service. Dr. Meleney in 1922 discovered that the host to Schistosoma japonicum in its intermediate stage of development is a genus of snail called oncomelania, which is indigenous to China, Japan, Formosa and the Philippines. The snails breed in slow-moving streams and in rice fields in China, where human excreta is used as fertilizer. The egg of the worm is discharged in human excreta. If it reaches fresh water the egg hatches a minute embryo, which finds a suitable snail to act as its host for a ten week incubation period. From one embryo several hundred almost microscopic fork-tailed creatures called cercariae develop and emerge from the snail; then they penetrate the skin of persons working in rice fields or otherwise exposed to water containing cercariae, they enter the blood, pass through the blood vessels of the lungs and intestines and mature in the liver, where the male and female worms mate; then they go back by way of the blood vesesls to the intestine, where the female lays its eggs. Thus damage to the human body is produced in various ways. Dr. Meleney during the war was chairman of the Subcommittee on Tropical Diseases of the National Research Council and formerly was on the faculty of Peiping Union Medical College in China. He said that it is not uncommon to find villages in the Yangtze River valley where 50 to 75 per cent of the population is infected. China has set up at Soochow an Institute of Endemic Diseases to carry out research and field control work on this problem. Dr. Chu believes that the continued cooperation between American and Chinese scientists will ultimately discover means of controlling schistosomiasis in China so that it will no longer be the social and individual tragedy that it is today.

Plan Research in Human Reproduction.—The reorganized board of directors of the National Committee on Maternal Health and the National Research Council in Washington have agreed to establish a committee to plan a program for research in human reproduction. The National Research Council, which will direct the program, has already established a committee on human reproduction headed by Dr. Howard C. Taylor Jr., New York, to study needs and then to recommend grants for specific research projects to qualified institutions and individuals. The council will set up research panels for various phases of the work. The panels will operate in accordance with policies to be established by the board of the Committee on Maternal Health under Dr. Haven Emerson, New York. The main areas of study of the council's committee are as follows: (1) the physiology of and the factors controlling conception; (2) the causes of sterility and treatment for infertility; (3) maternal and fetal physiology and clinical disorders developing during pregnancy; (4) the physiologic problems of marriage and the family relationships, and (5) the population aspects of these problems, social and economic as well as medical. The National Committee on Maternal Health will work in cooperation with the council's existing committees on endocrinology and sex research, and their chairmen will be ex officio members of the new committee. The Planned Parenthood Federation will seek to contribute a substantial part of the funds for the research program. While not a party to the contract, the federation is collaborating as a full partner of the whole program. Members of the National Research Council's committee on human reproduction are: Dr. Willard M. Allen, St. Louis; Frank A. Beach, Ph.D., New Haven; Dr. Nicholson J. Eastman, Baltimore; Earl T. Engle, Ph.D., New York; Carl R. Moore, Ph.D., Chicago; Samuel R. M. Reynolds, Ph.D., Washington, D. C.; Dr. Robert S. Hotchkiss, New York; Dr. John Rock, Boston; Dr. Ephraim Shorr, New York; Pascal K. Whelpton, B.S., Miami, Ohio; Douglas M. Whitaker, Ph.D., San Francisco; Dr. S. Bernard Wortis, New York; Dr. George W. Corner, Washington, and Dr. Cyril N. H. Long, New Haven. An appeal will be made to the public for funds to finance the work of this research program.

CORRECTION

Medical Service of the District of Columbia.—In the item entitled "Physicians Sign Up for Hospital Plan" in the Washington Letter in THE JOURNAL, November 22, page 779, the term "the new Group Hospitalization Insurance plan" was erroneous and should have been "Medical Service of the District of Columbia."

Marriages

RICHARD CHARLES BATT, Berlin, N. H., to Miss Anne Canaday Skinner at Glens Falls, N. Y., November 8.

WOODLAND WARD ANDERSON Jr., Newport News, Va., to Miss Faye Lillian Mitchell of Front Royal, June 7.

WILLIAM E. NESSELL, Washington, D. C., to Miss Beverly Munn of Wellesley Hills, Mass., October 25.

I. ROBERT PLOTNICK, Allentown, Pa., to Miss Jeannette S. Coopersmith of Philadelphia, July 4.

LESTER MACLEAN, Chicago, to Miss Mary Fay McDonald of Charleston, S. C., June 27.

WILLIAM W. ORR, Macon, Ga., to Miss Gloria Thornton of Decatur, June 6.

Deaths

James Madison Martin ✠ Dallas, Texas; born in St. James, Mo., Dec. 11, 1867; St. Louis College of Physicians and Surgeons, 1892; emeritus professor of radiology at the Southwestern Medical College; professor of x-ray diagnosis and electrotherapeutics at Southern Methodist University Medical department from 1902 to 1912; professor of roentgenology and electrotherapeutics, Baylor University College of Medicine, from 1905 to 1926, when he became professor of radiology, serving until 1938; specialist certified by the American Board of Radiology; past president of the Dallas Southern Clinical Society; member and past president of the American College of Radiology; member of the American Roentgen Ray Society and the Radiological Society of North America; affiliated with the Baylor University Hospital; died in the Gaston Hospital September 26, aged 79, of coronary thrombosis.

Frank B. Kistner ✠ Portland, Ore.; born in Indianapolis, Dec. 7, 1873; Medical College of Indiana, Indianapolis, 1898; clinical professor of otology, rhinology and laryngology at the University of Oregon Medical School; specialist certified by the American Board of Otolaryngology; member of the American Academy of Ophthalmology and Otolaryngology, American Laryngological Association, American Laryngological, Rhinological and Otological Society and the American Otological Society; past president of the Pacific Coast Oto-Ophthalmological Society; fellow of the American College of Surgeons; at one time coroner of Morrow County; on the staffs of the Good Samaritan, Multnomah, St. Vincent's, Doernbecher Memorial, Portland Eye, Ear, Nose and Throat and Portland Medical hospitals; died in St. Mary's Hospital, Astoria, September 25, aged 73, of coronary heart disease.

Romeo Joseph Gentile ✠ Surgeon, U. S. Public Health Service, Norfolk, Va.; born in Suffolk, Va., Oct. 24, 1909; University of Virginia Department of Medicine, Charlottesville, 1935; fellow of the American College of Surgeons; interned at the U. S. Marine Hospital in Baltimore, where he served a residency; in 1937 commissioned an assistant surgeon in the U. S. Public Health Service; during World War II assigned as flotilla surgeon for an LCI group with the amphibious forces and the Coast Guard in the Mediterranean area; participated in the Sicilian and Salerno invasions; after his return to this country was assigned to the U. S. Coast Guard Training Station in St. Augustine, Fla., as medical officer in charge; since July 1946 chief of surgical services at the U. S. Marine Hospital in Norfolk, where he died September 4, aged 37.

Descum Clayton McKenney ✠ Buffalo; born in Brookfield Station, Ontario, Canada, March 30, 1872; University of Buffalo School of Medicine, 1905; professor and head of the department of proctology at his alma mater; member of the House of Delegates of the American Medical Association in 1933, 1934 and 1935, and vice chairman of the Section on Gastro-Enterology and Proctology 1937-1938 and chairman 1938-1939; specialist certified by the American Board of Surgery; member and past president of the American Proctologic Society; fellow of the American College of Surgeons; served in France during World War I; affiliated with Lafayette General Hospital, Edward J. Meyer Memorial Hospital, Children's Hospital and Buffalo General Hospital, where he died September 13, aged 75, of coronary thrombosis.

Harry Eugene Allen ✠ Seattle; born in Lyons, Wis., Feb. 28, 1876; Rush Medical College, Chicago, 1898; member of the American Association for the Study of Trauma; fellow of the American College of Surgeons; past president of the King County Medical Society; served in the medical corps of the U. S. Army during the Boxer Rebellion in China, the Philippine Insurrection and in France during World War I; formerly chief medical adviser to the state department of labor and industries; formerly chief surgeon of the Chicago, Milwaukee, St. Paul and Pacific railroads; on the staffs of King County and Providence hospitals; died September 17, aged 71.

Edward Lawrence Howard, Fort Worth, Texas; Fort Worth School of Medicine, Medical Department of Texas Christian University, 1906; member of the American Medical Association; served as president of the Tarrant County Medical Society; honorary member and past president of the Fort Worth Eye, Ear, Nose and Throat Society; for many years a member of the staff and served as chairman of the board of the City-County Hospital; on the staffs of Harris Memorial, All Saints, St. Joseph's and Pennsylvania Avenue hospitals; died recently, aged 67, of coronary thrombosis.

William G. Husband, Hollis, Okla.; Vanderbilt University School of Medicine, Nashville, Tenn., 1916; member of the American Medical Association; county health officer; served during World War I; medical director and owner of Hollis Hospital; chairman of the board of directors of the Hollis First State Bank and Trust Company; charter member and served as president of the Rotary Club; the sports stadium was named for him; died in a hospital at Detroit, September 25, aged 60, of injuries received when he was struck by an automobile as he was crossing the street.

Benjamin Franklin Smith ✠ Jackson, La.; born in Southwest City, Mo., March 3, 1895; Tulane University of Louisiana School of Medicine, New Orleans, 1919; formerly associate professor of neurology and psychiatry at the Mayo Foundation, University of Minnesota at Rochester, Minn.; member of the American Psychiatric Association; served as superintendent of the Willmar (Minn.) State Asylum, Rochester (Minn.) State Hospital and State Hospital number 2 at St. Joseph, Mo.; affiliated with East Louisiana State Hospital; died in Angola August 17, aged 50, of cerebrovascular accident.

John Fredolph Alden ✠ St. Paul; Marquette University School of Medicine, Milwaukee, 1916; on the staffs of Bethesda and St. Joseph's hospitals; accidentally drowned while swimming at Lake Owasso, August 10, aged 59.

Clark Taylor Alexander ✠ Lieutenant Commander, U. S. Navy, retired, Vallejo, Calif.; University of Colorado School of Medicine, Denver, 1925; entered the U. S. Navy in June 1925; retired Aug. 1, 1942 for incapacity resulting from an incident of service; on the staffs of Vallejo General and Community hospitals; died in the U. S. Naval Hospital in Mare Island, September 26, aged 52, of cerebral hemorrhage.

Julius Elmer Alter, New York; Columbia University College of Physicians and Surgeons, New York 1901; died in August, aged 69.

George Thomas Ayres ✠ Phoenix, Ariz.; Rush Medical College, Chicago, 1897; an Affiliate Fellow of the American Medical Association; member of the Minnesota State Medical Association; died in Halifax, Nova Scotia, Canada, recently, aged 72, of arteriosclerosis.

Milton Julius Ballin, New York; Columbia University College of Physicians and Surgeons, New York, 1900; fellow of the American Academy of Ophthalmology and Otolaryngology; affiliated with the Mount Sinai, Bronx and Beth David hospitals; translated, edited and published three editions of Politzer's textbook on the ear; died September 12, aged 73, of Parkinson's disease.

John H. Basinger, Oklahoma City; Kentucky School of Medicine, Louisville, 1889; died August 4, aged 87.

Marion Trotti Benson Sr., Atlanta, Ga.; Atlanta College of Physicians and Surgeons, 1900; member of the American Medical Association; fellow of the American College of Surgeons; past president of the Fulton County Medical Society; on the staffs of Crawford W. Long Hospital, St. Joseph's Infirmary, Grady Hospital and the Georgia Baptist Hospital; died September 3, aged 70, of coronary occlusion.

Charles Francis Brady, Akron, Ohio; St. Louis University School of Medicine, 1928; served on the staff of St. Thomas Hospital; died August 25, aged 45.

David Breuer ✠ Portland, Ore.; the Hahnemann Medical College and Hospital, Chicago, 1909; affiliated with Hahnemann Hospital; died September 13, aged 69, of acute coronary disease.

Benjamin George Broghammer ✠ Cedar Rapids, Iowa; St. Louis University School of Medicine, 1927; fellow of the American College of Surgeons; affiliated with St. Luke's Hospital and Mercy Hospital, where he died September 25, aged 49, of acute myelogenous leukemia.

Edward Gibson Brumback, Luray, Va.; University of Virginia Department of Medicine, Charlottesville, 1897; member of the American Medical Association; affiliated with Page Memorial Hospital; formerly vice president of the First National Bank; died August 13, aged 73, of coronary thrombosis.

Walter Minson Brunet, Brooklyn; University College of Medicine, Richmond, Va., 1911; served during World War I; formerly affiliated with the U. S. Public Health Service; died September 24, aged 60, of aortic stenosis.

Marion Burke, Palo Alto, Calif.; Women's Medical College of the New York Infirmary for Women and Children, New York, 1895; died in the Palo Alto Hospital September 4, aged 85, of bronchopneumonia and arteriosclerosis.

Isabel Cobb, Wagoner, Okla.; Woman's Medical College of Pennsylvania, Philadelphia, 1892; died August 11, aged 88.

Herbert Jacob Cohn ✠ San Francisco; Medical Department of the University of California, San Francisco, 1909; member of the Pacific Coast Oto-Ophthalmological Society; served during World War II and overseas during World War I; affiliated with Mount Zion Hospital, where he died August 10, aged 62, of myocardial infarction.

John Richard Comerford, Brooklyn; Baylor University College of Medicine, Dallas, 1921; member of the staffs of the Caledonian and Samaritan hospitals; died September 21, aged 51, of cerebral hemorrhage.

Andrew Gregory Copeland, Timpson, Texas; Memphis (Tenn.) Hospital Medical College, 1910; member of the American Medical Association; died recently, aged 74, of carcinoma of the throat.

Aris Wellington Cox ✠ Helena, Ark.; University of Nashville (Tenn.) Medical Department, 1906; served during World War I; died recently, aged 64, of carcinoma of the lung.

Russell Rufus Craft, Boise, Idaho; Chicago College of Medicine and Surgery, 1916; died August 31, aged 58.

Hugh Wilfrid Crawford, Wellesley Hills, Mass.; University of Toronto Faculty of Medicine, Toronto, Canada, 1928; specialist certified by the National Board of Medical Examiners; associate medical director of the John Hancock Life Insurance Company; formerly medical director of the Columbian National Life Insurance Company of Boston and the Connecticut General Life Insurance Company of Hartford, Conn.; died in the New England Baptist Hospital, September 25, aged 43, of coronary sclerosis, bronchopneumonia and exfoliative dermatitis.

Nelson Pierrepont Crooks, Alhambra, Calif.; Hahnemann Medical College of the Pacific, San Francisco, 1897; engaged in public health work while serving as ship's surgeon to and from the Orient for many years; served as communicable disease physician in Los Angeles County; died September 17, aged 71, of cerebral hemorrhage.

Albert Nelson Crouch ✠ Schenectady, N. Y.; Albany (N. Y.) Medical College, 1915; member of the Radiological Society of North America, Inc.; for many years on the staff of Ellis Hospital; died September 24, aged 67, of coronary thrombosis.

James S. Daniel, Harlem, Ga.; Chattanooga (Tenn.) Medical College, 1893; died September 6, aged 76, of heart disease.

Bernard Francis Devine, Boston; Harvard Medical School, Boston, 1915; affiliated with East Boston Relief Station; died August 25, aged 58.

Isaac Hayden Doolittle, South Bend, Ind.; Kentucky School of Medicine, Louisville, 1887; died September 28, aged 85, of subdural hemorrhage.

Gordon Albert Dumas, Shepherd, Mich.; University of Michigan Medical School, Ann Arbor, 1944; interned at the Naval Hospital in Pearl Harbor, Hawaii; formerly a resident in obstetrics and gynecology at St. Joseph's Mercy Hospital in Detroit; served in the medical corps of the U. S. Naval Reserve during World War II; died in Grand Rapids September 25, aged 26, of an injury received in an automobile accident.

Joel Albert Eastman, Peoria, Ill.; Chicago College of Medicine and Surgery, 1910; member of the American Medical Association; member of the local board of health; at one time health officer; on the staff of the Methodist Hospital, where he died September 26, aged 67, of myocardial infarction.

William Clyde Eggleston, Spring Hill, Tenn.; University of Tennessee Medical Department, Nashville, 1907; died in the Dan German Hospital, Franklin, September 21, aged 67, of heart disease.

William Francis Ertell ✠ Kalamazoo, Mich.; Michigan College of Medicine and Surgery, Detroit, 1898; died in the Bronson Hospital September 29, aged 72, of arteriosclerosis and cerebral hemorrhage.

Mary Louise Gardiner, Colorado Springs, Colo.; Colorado School of Medicine, Boulder, 1895; died August 31, aged 82.

George Cushman Gates, Springfield, Mass.; Dartmouth Medical School, Hanover, N. H., 1903; member of the Springfield Academy of Medicine; died September 2, aged 69, of angina pectoris.

Jules F. X. Gendron, Grand Rapids, Minn.; Minneapolis College of Physicians and Surgeons, medical department of Hamline University, 1896; member of the American Medical Association; served during World War I; village health officer; affiliated with Itasca County Hospital; died September 11, aged 78, of heart disease.

John Ulrich Giesy ✠ Salt Lake City; Starling Medical College, Columbus, 1898; served during World War I; on the staff of the Latter Day Saints Hospital, where he died September 8, aged 70, of lobar pneumonia.

William Wallace Gilbert, St. Louis; Homeopathic Medical College of Missouri, St. Louis, 1898; at one time professor of diseases of children at his alma mater; served during World War I; on the staff of Christian Hospital, where he died September 27, aged 70, of Paget's disease of bone.

Eurelio Giordano, New York; Georgetown University School of Medicine, Washington, D. C., 1928; died recently, aged 77.

Howard Wilbur Granden, Fullerton, Neb.; University of Nebraska College of Medicine, Omaha, 1936; member of the American Medical Association; served during World War I; died in the Lutheran Hospital, Grand Island, September 12, aged 52, of lobar pneumonia.

James B. Granville, Brady, Texas; University of Texas School of Medicine, Galveston, 1904; member of the American Medical Association; past president of the McCulloch County Medical Society; in 1923 president of the Chamber of Commerce; died recently, aged 66, of heart disease.

Hiram Adelbert Green, Boulder, Colo.; Central Medical College of St. Joseph, Mo., 1898; member of the American Medical Association; fellow of the American College of Surgeons; served as vice president of the Colorado Hospital Association; for many years medical director of the Boulder-Colorado Sanitarium and Hospital; died September 13, aged 77, of paralysis agitans.

Lee De Meritt Gunn, Salamanca, N. Y.; University of Buffalo School of Medicine, 1908; member of the American Medical Association; city health officer; surgeon for the Baltimore and Ohio and the Pennsylvania railroads; New York state physician for Allegany Indian Reservation; on the staff of City Hospital, where he died September 1, aged 63, of coronary thrombosis.

Frank John Gutmann, Chicago; Chicago Medical School, 1923; died in St. Luke's Hospital September 16, aged 49, of carcinoma of the rectum.

Eugene Howe Hartnett ✠ Colonel, U. S. Army, retired, Bethesda, Md.; College of Physicians and Surgeons, medical department of Columbia College, New York, 1894; entered the U. S. Army as an assistant surgeon on July 23, 1898; veteran of the Spanish-American War and World War I; retired Dec. 15, 1922 after twenty-four years of service; died February 6, aged 76.

Addison Hayes Hattery, Osborn, Ohio; Medical College of Indiana, Indianapolis, 1898; member of the American Medical Association; served during World War I; killed September 23, aged 71, when the automobile in which he was driving was struck by a train.

Charles Hayes, Birmingham, Ala.; Chattanooga (Tenn.) Medical College, 1903; died August 31, aged 68.

Walter Strickler Hibshman, Easton, Pa.; Medico-Chirurgical College of Philadelphia, 1895; died in the Allentown (Pa.) State Hospital, recently, aged 74, of arteriosclerosis.

Elias Peter Hicks, Franklin Township, N. J.; University of Vermont College of Medicine, Burlington, 1898; died September 12, aged 73, of myocarditis.

Joseph Hollos, Brewster, N. Y.; Magyar Királyi Pázmány Petrus Tudományegyetem Orvosi Fakultasa, Budapest, Hungary, 1899; died September 23, aged 71, of coronary thrombosis.

Joseph Bryce Holmes ✠ Macomb, Ill.; College of Physicians and Surgeons of Chicago, 1894; formerly surgeon in chief of the Holmes Hospital; served on the staffs of Phelps and St. Francis hospitals; died September 16, aged 76, of heart disease.

William L. Huckabay, Slaton, Texas; (licensed in Texas, under the Act of 1907); died August 24, aged 85, of myocarditis.

Susanna Mary Ives, Middletown, Conn.; Woman's Medical College of Pennsylvania, Philadelphia, 1894; on the staff of the Middlesex Hospital; died September 12, aged 80, of heart disease.

James Robert Jackson, Belzoni, Miss.; University of Tennessee College of Medicine, Memphis, 1931; died September 18, aged 41, of heart disease.

Mary Williamina Lougee Johnson, Brookline, Mass.; Woman's Medical College of Pennsylvania, Philadelphia, 1894; member of the American Medical Association; at one time affiliated with the Inwood Sanitarium, Conshohocken, Pa.; died in St. Elizabeth's Hospital, Brighton, September 15, aged 80, of arteriosclerotic heart disease.

Harry Johnston, Baton Rouge, La.; Medical Department of Tulane University of Louisiana, New Orleans, 1900; member of the American Medical Association; for many years parish coroner; died September 25.

Albert Fleming Kaler, New Holland, Ohio; Starling Medical College, Columbus, 1897; member of the American Medical Association; served as president of the Pickaway County Medical Society; vice president of the county board of health; member of the Chamber of Commerce; died September 8, aged 76, of diabetes mellitus and arteriosclerosis.

Simon Cecil Kates, Detroit; Detroit College of Medicine, 1932; member of the American Medical Association; on the staff of Grace Hospital, where he died recently, aged 39, of carcinoma of the liver.

Ray Woizeske King ✠ Peoria, Ill.; Rush Medical College, Chicago, 1926; served in the medical corps, Army of the United States, during World War II; on the staff of St. Francis Hospital, where he died September 30, aged 48, of carcinoma of the lung.

Harold Myer Levin ✠ Burlington, Vt.; University of Vermont College of Medicine, Burlington, 1927; roentgenologist and consulting surgeon to the Fanny Allen Hospital in Winooski and the Bishop De Goesbriand Hospital, where he taught anatomy and physiology from 1922 to 1936; in 1927 first lieutenant in the medical reserve corps of the U. S. Army and in June 1947 placed on the honorary reserve list; died in Pass-A-Grille Beach, Fla., September 15, aged 44, of congestive heart disease.

Eustace Long, Madison, Fla.; Maryland Medical College, Baltimore, 1903; member of the American Medical Association; served during World War I; on the staff of the Madison County Memorial Hospital; died September 8, aged 70, of coronary occlusion.

Henry Clay Long, Knoxville, Tenn.; Vanderbilt University School of Medicine, Nashville, 1914; specialist certified by the American Board of Internal Medicine; member of the American Medical Association; fellow of the American College of Physicians; past president of the Knoxville Academy of Medicine; served during World War I; on the staffs of Knoxville General Hospital, St. Mary's Hospital and the Fort Sanders Hospital, where he died September 14, aged 63, of coronary occlusion.

James Leo McDonald ✠ Yakima, Wash.; Medical College of Virginia, Richmond, 1910; served during World War I; died recently, aged 59, of cerebral hemorrhage.

George Palmer McNeill Jr. ✠ Major, U. S. Army, retired, Sarasota, Fla.; University of Virginia Department of Medicine, Charlottesville, 1917; Army Medical School, 1918; Medical Field Service School, 1923; honorary graduate of the Army Medical School, 1924; served during World War I; entered the medical corps of the U. S. Army as a first lieutenant on Nov. 9, 1918; retired Sept. 30, 1934 for disability in line of duty; died April 25, 1946, aged 54.

Edwin Smith McNevins, Green Bay, Wis.; Chicago College of Medicine and Surgery, 1915; officer during World War I; affiliated with the Brown County Insane Aslyum for many years; on the staffs of St. Mary's Hospital, Bellin Memorial Hospital and St. Vincent's Hospital, where he died September 24, aged 61, of carcinoma of the prostate and urinary bladder.

Cyrus C. Marshall, Hornbeak, Tenn.; University of Louisville (Ky.) Medical Department, 1897; died September 21, aged 75, of cerebral hemorrhage.

Lawrence Cornelius Meredith ✠ Elyria, Ohio; University of Colorado School of Medicine, Denver, 1925; specialist certified by the American Board of Otolaryngology; member of the American Academy of Ophthalmology and Otolaryngology; fellow of the American College of Surgeons; served during World War I; on the staff of the Elyria Memorial Hospital; died September 29, aged 55, of carcinoma of the stomach and diabetes mellitus.

Mansoor John Moghtader, New York; Madresseh Teb, Teheran, Iran, 1923; specialist certified by the American Board of Otolaryngology; member of the American Medical Association and the American Academy of Ophthalmology and Otolaryngology; affiliated with the Manhattan Eye, Ear and Throat Hospital, where he died September 15, aged 46.

Albert John Molzahn ✠ Wood River, Neb; George Washington University School of Medicine, Washington, D. C. 1911; a captain in the medical corps of the U. S. Army during World War I; served as school physician and on the board of education; on the staffs of the Lutheran Hospital and St. Francis Hospital, Grand Island, where he died September 29, aged 61, of encephalitis.

Mathison J. Montgomery ✠ Surgeon, Lieutenant Commander, U. S. Navy, retired, Wilkinsburg, Pa.; University of Maryland School of Medicine, Baltimore, 1917; U. S. Naval Medical School, 1932; entered the U. S. Navy in 1917; served during World War I; retired May 1, 1933 for incapacity resulting from an incident of the service; died in the Naval Hospital, Brooklyn, May 27, aged 53, of carcinoma of the throat.

Robert Earl Morris, Fremont, Neb.; University of Nebraska College of Medicine, Omaha, 1941; interned at Bryan Memorial Hospital in Lincoln; on the staff of Mineral Springs Sanatorium in Cannon Falls, Minn.; died in Rochester, Minn., September 27, aged 32, of pulmonary tuberculosis and diabetes mellitus.

William Moser ✠ Brooklyn; University of the City of New York Medical Department, 1888; an Affiliate Fellow of the American Medical Association; fellow of the American College of Physicians; on the consulting staff of Wyckoff Heights Hospital; died in the Lutheran Hospital September 12, aged 79, of cerebral hemorrhage.

Dewitt Payne, Washington, D. C.; Atlanta College of Physicians and Surgeons, 1911; formerly affiliated with the Veterans Administration; appointed a major in the medical reserve corps of the U. S. Army in September 1942; died in Daytona Beach, Fla., April 4, 1944, aged 58, of bronchopneumonia.

Arthur Sylvert Pendleton ✠ Lieutenant Colonel, U. S. Army, retired, Raleigh, N. C.; University of Pennsylvania Department of Medicine, Philadelphia, 1895; served during World War I; formerly senior surgeon in the U. S. Public Health Service, affiliated with the Richmond, Va., regional office, U. S. Veterans Bureau and Veterans Administration; entered the medical corps of the U. S. Army in 1920; retired Nov. 28, 1928 for disability in line of duty; member of the American Psychiatric Association; died January 26, aged 72.

Clara Moore Phillips, Los Angeles; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1904; at one time instructor in clinical medicine and medical advisor to women at the University of Wisconsin Medical School in Madison; formerly pathologist at the North Chicago Hospital in Chicago; died September 26, aged 74, of heart disease.

Charles Alexander Ragan ✠ Lieutenant Colonel, U. S. Army, retired, New York; Columbian University Medical Department, Washington, D. C., 1900; entered the U. S. Army in 1901; retired in 1917 for disability in line of duty; for many years referee for the Travelers Insurance Company; member of the Association of Military Surgeons of the United States; died January 26, aged 73, of cerebral hemorrhage.

Allen Macy Smith ✠ Colonel, U. S. Army, retired, Washington, D. C.; Syracuse University College of Medicine, 1889; entered the regular army as an assistant surgeon on June 6, 1890; served as a major and surgeon of the 41st U. S. Infantry in the Philippine Insurrection; retired from active service Aug. 10, 1920, after more than thirty years' service; died June 26, 1945, aged 81.

Jay Howard Sprague, Worcester, Mass.; Middlesex College of Medicine and Surgery, Waltham, 1918; died recently, aged 58.

Frank Noble Stiles ✠ Major, U. S. Army, retired, Denver; State University of Iowa College of Medicine, Iowa City, 1893; served during World War I; entered the medical corps of the U. S. Army on July 1, 1920; retired Nov. 30, 1930 for disability in line of duty; died Nov. 2, 1946, aged 79, of heart disease.

Edwin Rudolph Svrcek, La Grange, Texas; St. Louis University School of Medicine, 1944; member of the American Medical Association; interned at Robert B. Green Memorial Hospital in San Antonio, where he served a residency; died in an airplane crash recently at Hostyn, aged 30.

Arthur Leonard Windom ✠ Seattle; Willamette University Medical Department, Salem, 1910; at one time superintendent of the King County Tuberculosis Hospital; on the staff of the Virginia Mason Hospital; died September 8, aged 61, of coronary thrombosis.

Charles D'Arcy Wright ✠ Minneapolis; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1887; Affiliate Fellow of the American Medical Association; fellow of the American College of Surgeons; on the staff of St. Mary's Hospital; oculist, Minneapolis and St. Louis Railway Company; consulting oculist, Minneapolis, St. Paul, and Sault Ste. Marie Railway; died recently, aged 83, of bronchopneumonia.

Foreign Letters

LONDON

(From Our Regular Correspondent)

Nov. 9, 1947.

Compulsory Insurance for All

The National Health Service, which comes into force next year, is to provide every form of medical treatment, domiciliary and hospital, general and special, free to every one. It may be regarded as an extension of the National Health Insurance Act, which has been in existence for some years and applies only to the majority of employed persons whose earnings do not reach a certain level. These persons are all insured against illness; they have to make weekly payments into a fund to which the government and the employer contribute. A logical consequence of free medical treatment for all would be compulsory insurance payments by all, and the socialist government, with its urge for state control of everything, is arranging for its introduction. Previously an employer was a necessary condition for compulsory insurance; this is no longer the case. Next July nearly two million self employed workers, ranging from street hawkers and chimney sweeps to physicians and company directors, will be compulsorily insured for the first time. Few countries have yet attempted to include men without masters in compulsory social insurance. The French, inspired by the British plans for social security, attempted to do so and failed. But the British appear to have more chances of success. The majority of those who are self employed are humble persons who will want to be insured because of the benefits. But wealthier independent workers, such as lawyers, physicians, prosperous farmers and successful literary men, have no desire to be insured. They will nevertheless have no choice. A reaction against socialist rule has begun.

Further Food Restrictions: Potatoes Rationed

The new food restrictions have already been increased, and potatoes, the one important food remaining unrationed, are now rationed, as is bread. The potato ration for adults is 3 pounds (1,367 Gm.) a week, for children under the age of 5 years 1½ pounds (680 Gm.), and for expectant mothers 4½ pounds (2,041 Gm.). The reason for this restriction is that the country is faced with a 20 per cent reduction in supplies compared with those for last year, partly because of a reduction in the acreage planted, which in turn was due to floods at the end of the spring frosts. Rationing is necessary in order that supplies may last until next year's crops are available.

Other food restrictions due to shortage of dollars in foreign trade are also announced. Allocations of sugar for manufacturing purposes will be reduced 25 per cent. Domestic preserves will be maintained at 1 pound (454 Gm.) a person for each four week period. The chocolate and sweet ration will be cut from 4 to 3 ounces (113 to 84 Gm.) weekly. The ration points for imported canned marmalade drop 16 to 12 for 2 pounds (907 Gm.) and for grapefruit from 15 to 12.

Research in Toxicology

A new advisory committee has been formed to assist the Medical Research Council in promoting research in toxicology. The chairman is Professor G. R. Cameron, F.R.S., and the members include Professor J. H. Gaddum, F.R.S., Professor R. A. Peters, F.R.S., and Dr. Donald Hunter. To carry out the experimental work a new toxicology research unit has been established at the Chemical Defense Experimental Station. For clinical investigations the council already has its Department for Research in Industrial Medicine at the London Hospital under the direction of Dr. Donald Hunter and its Industrial Medicine Research Unit at the Birmingham Accident Hospital. Research may also be promoted by the council elsewhere, either by its own staff or by grants to independent workers.

BELGIUM

(From Our Regular Correspondent)

Nov. 24, 1947.

The High Infantile Mortality Rate

Public opinion in Belgium, even in medical circles, does not seem conscious of the gravity of the infantile mortality rate. Of 120,000 births annually, 8,400 infants die before completion of the first year of life. This represents a rate of about 70 per thousand. Of all countries of western Europe, Belgium has the highest infantile mortality rate although around the year 1880 the rate was, with that of England, the lowest. Efforts for the protection of childhood have had an ephemeral success, resulting largely from all sorts of distributions, which took place after World War I. These efforts again had a great affluence in 1940 due especially to the advantages in foods offered to the collaborationists. Consultations for nurslings require decent installations. Consultation offices that are poorly equipped function with difficulty. In the large cities the consultation centers are often multiplied to excess. It would be preferable to reduce them in number and give them suitable installations, competent medical personnel and an adequate clientele. Unfortunately, the creation of these consultation centers is often the result of politics. A revision of their distribution is essential.

The National Organization for the Protection of Childhood provides the funds for the centers, and the local committee provides a well equipped place. The greatest difficulty appears to be in finding a physician to conduct the consultations.

The National Organization for the Protection of Childhood controls the nominations and exacts the maximum of guaranties on the competence of the candidates. The physicians, after having secured the post, often lose interest as a result of insufficient remuneration. In general the physicians are ill prepared to play an efficient role in the consultations for nurslings. They are insufficiently informed about the benefits of preventive medicine and perhaps have the tendency to perform their functions too administratively. Their work cannot be efficient without the collaboration of an assistant experienced in social work. Three members of the consultation committee participate in the organization of the sessions in observing the elementary rules of childhood development, in particular as they concern hygiene and the prevention of contagious diseases.

Medical Examination at the Start of Employment

Dr. Decharneux published in *Bruxelles-médical* the results of numerous experiences of industrial physicians on the medical examination at the start of employment. Long before legislation demanded it, physicians had understood their usefulness to industry. This consists not only in routine examination of the worker to ascertain his fitness for work or to detect a disease and thus avoid later compensation lawsuits, but the physician aids the employer as councilor of the community of workers.

An industrial medical service must have sufficient equipment and should not be relegated to a corner of the establishment but should have a convenient location. The examination of adolescents and workers, made obligatory by recent Belgian law, often is given hastily and under poor conditions in the home of the physician. The industrial societies must put at the disposal of the physician all the means necessary to complete his task satisfactorily.

The medical service is active in the life of industry. The physician cannot hold himself apart from the factory. He must know the nature and condition of the work. He must attend meetings concerned with safety measures, the prevention of disease and accidents. The cooperation of social workers and visiting nurses is indispensable, although they should function under the direction of the physician.

The medical examination at the start of employment is destined to direct the employee to a position corresponding to

his physical and intellectual capacities; it is one of the essentials of preventive medicine. Occupational readaptation must be considered for recovered patients. The author brings his personal experience to show that examination at the start of employment and medical supervision of workers are of incontrovertible value.

The necessity of occupational orientation has proved its worth on a large scale in the allied armies. A first selection must be made by a central organization. It will be complemented by specialized services of each industry. The retraining of the war injured as it has been conceived in Great Britain is an example to be followed. It is not necessarily expensive and can be realized with simple means.

Physical education is a problem for the industrial physician. Suitable medical gymnastics make possible the prevention of deformities connected with certain occupations. It appears more necessary for office employees than for other workers.

Central Emergency Hospitals

Tondeur stated, before the Belgian Society of Surgery, that in view of certain overpopulated urban areas where factories and industrial shops have been erected, central emergency hospitals should be erected which may be in turn cantonal and even provincial. The transport of injured or critically ill patients will be effected by special ambulances. The director will be a physician who lives at the hospital. The surgical personnel will comprise one or two resident surgeons with three associates and three assistants, who will reside in these hospitals for six months, but they have to have at least two years' previous experience in surgery. In addition there will be six interns and a certain number of nurses on duty.

BUENOS AIRES

(From Our Regular Correspondent)

Nov. 1, 1947.

Pathology Following Inhalation of Gasoline

Drs. M. R. Castex, E. S. Mazzei, M. S. Dreyer and E. A. Pedace reported to the National Academy of Medicine a rare case of pneumonitis due to inhalation of gasoline. A man, aged 29, aspirated gasoline from a tank and absorbed about half a glass of it. Immediately he vomited, coughed and had pain in the sternal region. During the next few hours there developed pulmonary edema and atelectasis of the median and inferior lobes (first described case). In three weeks he recovered. Almost no gastrointestinal or nervous symptoms were observed. The pulmonary complication which usually develops only after eighteen to twenty hours developed early in this case, as shown in the first roentgenogram made about seven hours after the accident. On the second day notable leukocytosis with neutrophilia developed, and the eosinophils disappeared. Restitution of the pulmonary tissue began on the eleventh or twelfth day. The atelectasis was explained as caused by irritation of the respiratory tract with decided congestion and exudation of mucus, which tamponed the bronchus. The differential diagnosis between pneumothorax and atelectasis was difficult but could be made by radiography. The great intensity of pain could be explained through experimental observations which showed that these substances had a tendency to reach the subpleural and pleural zones, thus irritating a region with dense innervation. The patient was treated with morphine, penicillin and analeptics. Gastric lavage and insufflations of oxygen or carbonic gas are contraindicated.

The authors experimented with 8 rabbits in an attempt to reproduce the clinical observations. They instilled through the nose 0.25 to 1 cc. of gasoline, the smaller doses repeatedly. In all the animals there developed lesions; 5 of them died. The lesions developed around the hilus of the lung, particularly in the median lobe of the right side; prevalent zones were also those next to the sulcus and the subpleural regions. During the first hours congestion predominated. In 1 animal the trachea became obstructed by blood and mucus. The earlier foci of bronchoalveolitis later on conglomerated and created bronchopneumonic or pneumonic forms. Superficial grayish white points due to the necrosis of tissue appeared in three to five days. Frequently, on the surface of the lung, areas of vicarious hypertrophy appeared and were wrongly called "emphysema." Macroscopic observation showed a traumatic process accompanied by intense pulmonary congestion and edema, with necrotic foci in the alveolar and peribronchial tissue which gradually became circumscribed, with parenchymal atelectasis around these zones. The macroscopic examination of the rabbit which lived the longest before killed (twenty-six days), showed that the greater part of both lungs were of normal color and consistency. Conspicuous round foci, the size of a grain of wheat, were found; they were hard, gray and surrounded by a reddish border; microscopically they were necrotic, well capsulated zones.

If more time was given, focal fibrosclerosis developed which inclosed the affected alveolus and bronchus and the atelectatic zones.

National Congress of Medicine

The National Congress of Medicine will be held Dec. 9-13, 1947 at La Plata, under the chairmanship of Dr. Federico E. Christmann, who occupies the chair of surgery at the university. The main subject will be "Rheumatism" (Professor Aníbal Ruíz Moreno). The congress will be divided into three sections: biology, internal medicine and surgery, and these into subsections.

In the section on biology Dr. B. A. Houssay will discuss "Normal Blood Pressure," Dr. A. E. Bianchi, "Arterial Lesions of Hypertension." Dr. Alois Bachmann will speak on the etiology of rheumatism, Drs. P. Elizalde and W. Casal on histologic lesions and Dr. E. Herzog (Concepción de Chile) on histopathologic changes.

In the section on internal medicine Dr. G. Martínez will discuss rheumatic carditis and Dr. Ed. Braun Menéndez experimental hypertension.

The section on surgery will cover "Late Results of Cholecystectomy Following Biliary Lithiasis," by Dr. C. Velasco Suaréz; "Surgical Treatment of Essential Arterial Hypertension" by Aríbal Introzzi and "Anesthesia in Operations on the Upper Abdomen" by Drs. A. J. Lasala and J. Nesi.

Congress of Surgery

The Argentine Association of Surgery held its eighteenth congress in Buenos Aires, with Professor Manuel Ruiz Moreno in the chair. The official subjects were cancer of the lungs, intestinal invagination in infants and pseudarthrosis.

Cancer of the lungs (Dr. Mario Brea) must be operated on as early as possible.

With regard to intestinal invagination in infants, Dr. Alberto Lagos García came to the following conclusions based on twelve years of experience in the University Clinic for Children in Buenos Aires, where he had studied 529 well controlled cases: Early diagnosis is most important. Invagination must be suspected when the first symptoms (abdominal pain and vomiting) appear and the diagnosis must be accelerated. In most cases during early infancy radical surgical treatment is indicated.

The third subject, pseudarthrosis, was discussed by Dr. Oscar R. Maróttoli.

Conference of the Pan-American Health Organization

The conference of the Pan-American Health Organization was held in Buenos Aires under the chairmanship of Professor A. Zwanck (Argentina), with the participation of official representatives of twenty-one American republics and of Dr. Fred Soper, recently appointed director of the Pan-American Sanitary Bureau. The new Pan-American Health Organization continues the activities of the old Pan-American Sanitary Bureau,

founded in 1902. The congress had the task of giving a new structure and rules to the organization. Also, the World Health Organization was considered, with the participation of Dr. Brock Chisholm, its executive secretary.

The Brazilian delegate pointed out the danger of the sylvatic form of yellow fever and insisted on the necessity of organizing a plan to exterminate the virus. A unanimous resolution recommended especially the eradication of Aedes aegypti, apart from other measures according to the regional conditions. Dr. Soper indicated that the campaign of the Pan-American Sanitary Bureau against yellow fever will be active.

Dr. Carlos Alberto Alvarado, Argentine General Director of Malaria and Tropical Diseases, discussed the campaign against malaria. DDT is effective for at least three months. Fifty-one local bases for distribution have been created in the affected area of the Argentine (Northern provinces) where two hundred and fifty persons are working on this project intensively. Whilst this method has been used on a small scale in Venezuela, Panama and Mexico, it was used for the first time in the Argentine in such great measure, to prevent an epidemic. After termination of the sessions many delegates made a trip to the northern part of Argentina to study on the spot the methods used against malaria.

The next congress will be held in Mexico City in September 1948.

Census of Physicians

Dr. Rosendo H. Montaña Alzaga, of the National Department of Public Health states that a plethora of physicians does not really exist in the Argentine, but that they are poorly distributed and for the most part concentrated in the larger cities.

He makes the following comparison:

Country	Inhabitants (in 1,000s)	No. of Physicians (Estimated)	Inhabitants Served by 1 Physician
Argentina (1945)	14,130	16,900	835
Bolivia	3,457	531	6,510
Brazil	41,565	13,700	3,033
Colombia	9,689	2,322	4,172
Costa Rica	672	170	3,953
Cuba	4,969	3,100	1,603
Chile	5,327	2,061	2,584
Ecuador	3,085	700	4,407
El Salvador	1,880	303	6,204
United States	132,050	170,200	775
Guatemala	3,410	262	13,018
Haiti	2,719	252	10,791
Honduras	1,172	129	9,086
Mexico	19,848	11,000	1,804
Nicaragua	1,060	240	4,416
Panama	566	175	3,318
Paraguay	1,040	229	4,543
Peru	7,132	1,200	5,943
Dominican Republic	1,800	350	5,142
Uruguay	2,163	1,500	1,442
Venezuela	3,847	1,336	2,879

Argentina follows immediately after the United States. However, poor distribution in the Argentine has the result that in some Northern provinces fewer physicians are available per capita of population. To improve this situation several provincial authorities try to attract physicians by offering subsidies.

Infectious Diseases

The Argentine Society for Infectious and Epidemiologic Pathology held the second national congress in Buenos Aires under the chairmanship of Professor H. R. Rugiero. The subjects comprised the principal endemic-epidemic diseases of Argentina, i. e. brucellosis, typhoid, whooping cough, tetanus, spirochetal jaundice, infectious hepatitis, infectious enteritis, infectious encephalitis and infantile paralysis. A full day was dedicated to most of the subjects. Dr. Fred Soper, the new director of the Pan-American Sanitary Bureau, spoke on yellow fever. Dr. Carlos A. Tanturi presented his studies on infectious hepatitis among U. S. troops in the Mediterranean region during the war (1942-1945).

A few days before this congress opened, Argentina appropriated 20 million pesos to combat infectious diseases in the whole country, to construct and equip a children's hospital for infectious diseases in Buenos Aires and to establish an institute for infantile paralysis inside of this hospital, dedicated to investigation, prophylaxis, reeducation and rehabilitation of these patients. Similar institutions and services will be established in each national province and territory.

Influence of Sex on Experimental Diabetes

The fact that diabetes does not attack men and women in the same proportion could not be confirmed in animals until Foglia observed in 1945 that after extirpation of 95 per cent of the pancreas, diabetes developed in 92 per cent of white male rats but in only 28 per cent of white female rats. These conclusions were drawn from a recent study made by Drs. V. G. Foglia, N. Schuster and R. R. Rodríguez, of the Institute of Biology and Experimental Medicine (Dr. Houssay).

The male rat eats more and grows faster than the female. The same quantity of food was given to those of the two sexes, but the difference persisted, indicating that the alimentary factor cannot be the only one.

Brief Items

Recently some prominent American specialists visited Buenos Aires and also the other medical schools of the Argentine, addressing scientific societies and giving practical demonstrations: Prof. Dr. Theodore E. Walsh of St. Louis, invited by the Argentine Society of Otorhinolaryngology for giving practical demonstrations of his specialty, and Prof. Dr. Leroy A. Schall of Harvard for the same purposes. Prof. Dr. Daniel B. Kirby of New York has been invited by the Argentine Society of Ophthalmology for a series of conferences, which he is now giving at the Argentine Medical Association.

The recently founded Argentine Society of Cancerology, a new branch of the Argentine Medical Association, has held its session of inauguration. Its president Dr. Carranza insisted that the campaign against cancer must be directed and orientated by experts and not by men who only pretend to be scientific or by sensational popular propaganda.

At the University of La Plata an Institute of Aviation Medicine for postgraduate physicians has been created.

Dr. Roland Klemme (St. Louis) who was in Buenos Aires, lectured in an extraordinary session of the Society of Neurology, Psychiatry and Neurosurgery, which elected him as a honorary member, on "Extrapyramidal Surgery"; in the Neurosurgical Clinic of the Faculty on "Neurology of the Trigeminus," and in the Argentine Society Surgeons on "Surgical Treatment of Parkinson's Disease." He explained the results of his method of intervention in several hundred cases.

Anales de la Cátedra de Clinica Médica del Dr. E. S. Mazzei is the title of a new volume which will be published yearly (367 pages, El Ateneo, Buenos Aires). It contains the investigations and publications of the named chair at the Faculty of Medicine of the University of La Plata. Professor Mazzei, one of the most excellent pupils of Professor M. R. Castex, discusses the syndrome of endobronchial hyperpression, functional kidney insufficiency and, with collaborators, eight chapters on pulmonary embolism. Other papers concern the respiratory tract, liver and gallbladder.

Professor B. A. Houssay has been honored by receiving the Nobel Prize for medicine and physiology for 1947 jointly with Dr. and Mrs. C. F. Cori (St. Louis) for his investigations on the anterior lobe of the hypophysis and its importance in the distribution of glycogenic material in the human organism. Dr. Houssay has been named doctor *honoris causa* of Oxford and professor *honoris causa* of the University of Brazil in Río de Janeiro.

Correspondence

A NEW APPROACH TO THE PREVENTION OF MOTOR VEHICLE ACCIDENTS

To the Editor:—The term "motor vehicle accident" should cover all accidents that cause injury to person or property on the highway. Such accidents, whether slight or severe, are due to similar causes such as defects or obstacles in the highway; a highway inadequately guarded by lights, signs or other devices; a defective motor vehicle; a careless or incapacitated pedestrian; an unfit motorist, or a combination of two or more such causes. At this time reports are required only of accidents that cause personal injuries or substantial property damage. Other accidents are ignored as far as compulsory reporting is concerned. Such a distinction is as irrational as would be an attempt to prevent the spread of a communicable disease by requiring reports of only such cases as were manifestly serious.

The chief factor in motor vehicle accidents may well be the unfit motorist; unfit notwithstanding the official permit that he holds purporting to show his fitness. Even at its best the permit shows only that when the permittee was examined, and in the conditions under which the examination was conducted and the results graded, he was in the opinion of the examining board sufficiently familiar with the operation of a motor vehicle to justify the board in turning him loose on the public to demonstrate his skill or lack of it on his fellow men. But not until he has safely operated a motor vehicle at all hours of the day and night, year in and year out, in all kinds of weather and all manner of traffic is there any real proof of inherent, continuing competence. This final continuing test should drive incompetent operators from the highway, but it has failed to do so. The failure lies, it is believed, in the fact that those responsible for highway safety do not avail themselves of the information continuous driving on the highway offers. Accidents, loss of life and destruction of property continue, therefore, as a national scandal and disgrace and an outstanding public health problem. Obviously something is wrong. But what it is cannot be determined until the time, place and circumstances of all such accidents, or at least of an unbiased cross section of them, are known. The thousands of minor accidents that occur and that afford clues to the incompetence of many operators of motor vehicles must be reported if reasonable safety is to be attained.

The situation can be remedied only by requiring the operator of every motor vehicle involved in any highway accident, great or small, to report that accident to the proper highway authorities as soon as possible after it occurs, in writing. Minor accidents are due to the same causes and call for the same remedies as do major accidents, and action taken to prevent the occurrence of minor accidents will be equally successful in preventing the occurrence of accidents of more serious import. A distinction should not be made. Aside from any other advantages that might accrue from universal reporting, the fact that every motorist was required by law to report every highway accident in which he participated would go a long way toward making him more careful. The fact that every motorist participating in an accident must report it would tend to prevent any one or more participants from trying to escape discovery by refraining from making reports. Such general reporting would emphasize, too, the fact that the making of a report does not raise presumption of responsibility for the accident on the part of any reporting motorist.

Safety on the highway will be better and more rapidly promoted by requiring all motorists in any motor vehicle accident to report the time, place and circumstances of the accident; by recording and analyzing all such reports, according to the parties involved, the time, the place and other circumstances, including the odometer reading at the time, and by officially investigating such accidents as seem to call for investigation than by the methods of attempted control now prevailing. Repeated reports of accidents by the same motorist, evaluated in the light of his odometer readings, might well call for investigation with a view to corrective or disciplinary action. Reports of frequent accidents at the same place on the highway would certainly call for investigation and possibly for preventive measures. The occurrence of accidents with either excessive or less than usual frequency among motorists using motor vehicles of a particular type or with some special type of equipment would suggest at least an investigation to determine the significance of the difference. The cost of such a universal reporting system need not be prohibitive; the recording and tabulation of the reports received from day to day could be done by ordinary trained clerical service. Only the study and analysis of the data thus assembled, including such hearings and field investigation and such action as they show to be necessary, would call for a higher or professional grade of service. The question seems to be, Is human life worth the cost?

The method now prevailing, purporting to be an attempt to prevent motor vehicle accidents on the highway, is after all merely an adaptation of a method once relied on for the control of communicable diseases. Cases of communicable diseases were not reported. Only the resultant deaths came to the attention of the health authorities, just as today only the more serious motor vehicle accidents come to the attention of the highway traffic authorities. Under such circumstances prevention of such diseases was impossible. The method was a failure and has been long since abandoned. With the enactment of laws requiring the reporting of all cases, mild and severe, immediately on discovery, the way was paved for intelligent, organized investigation of causes and for the systematic application of preventive measures. Similar results may be expected to follow the enactment of laws requiring the reporting of every motor vehicle accident on the highway by the principal parties to it, with provision for preventive and remedial measures by competent and organized public officers appointed for that purpose.

WILLIAM C. WOODWARD, M.D., Washington, D. C.

HORMONE METABOLISM IN THE TARGET ORGANS

To the Editor:—In the editorial comment in THE JOURNAL on "Hormone Metabolism in the 'Target' Organs," November 8, page 646, I was surprised to see no reference to the fate of pancreatic secretion and cholecystokinin following intravenous injection of these *hormones.* In these two instances, the hormones seem not to be "consumed in a reaction in the receptor organ" (target organs) but on the results of the investigation of Greengard, Stein and Ivy (*Am. J. Physiol.* **132**:305 [Feb.] 1941; **133**:121 [May] 1941, and **134**:733 [Nov.] 1941) to be destroyed in plasma of the blood by two substances of enzymatic nature, dubbed "secretinase" and "cholecystokinase" respectively. Perhaps this work failed to fit the thesis of the editorial.

ARNO B. LUCKHARDT, M.D., PH.D.
University of Chicago,
Chicago.

Medical Motion Pictures

FILM REVIEWS

Condition Improved. 16 mm., black and white, sound, 1,200 feet (one reel) showing time thirty-three minutes. Prepared in 1946 by the National Film Board of Canada for the Department of Veterans' Affairs and the Department of National Health and Welfare, Ottawa. Procurable on rental or purchase from: National Film Board of Canada, 84 East Randolph Street, Chicago 1, and Ottawa, Ontario, Canada.

This is a film on physical medicine with special reference to occupational therapy and its relation to physical therapy, psychotherapy and physical rehabilitation in the management of patients who are seriously disabled, either physically or mentally. The presentation depicts graphically and in detail the amazing developments which have occurred recently in the physical and mental rehabilitation of the disabled.

This new development in medicine leads physicians into the new methods of providing happy lives.

The script of this film is good, the subject matter is excellent, and a wide variety of occupational therapeutic methods are shown. The sound track and background music are good, and the photography is fairly good. The film first describes the wide variety of occupational therapeutic procedures employed in conjunction with physical therapy and physical rehabilitation in the management of orthopedically disabled patients and then turns to a consideration of the employment of these same measures in the management of psychiatric problems. It carries an important message and does it extremely well. If there can be any criticism at all of this film, it would be that at times there has been insufficient differentiation between physical therapy and occupational therapy, with a tendency to overstress the importance of the latter as compared with its sister phases of physical medicine, physical therapy and physical rehabilitation. Also, at one point in the film a psychodrama is depicted and it is possible that the profanity used by the patient during this dramatic episode might offend certain audiences of delicate sensibility. The film should therefore be seen by professional workers in medicine and ancillary fields rather than by lay audiences. It will be of great interest for physicians in general, for specialists in physical medicine, for psychiatrists and for physical and occupational therapists and social workers. This film is highly recommended.

Nursery Technic as Used at the Cradle. Evanston, Ill. 16 mm., 1,120 feet (one reel), color, sound, showing time thirty minutes. Prepared by: Louis W. Sauer, M.D.; Louis D. Minsk, M.D., and Iwan Rosenstern, M.D., The Cradle, Evanston. Procurable on loan from: The Cradle, 2049 Ridge Avenue, Evanston, Ill.

This film describes the technics whereby aseptic principles are applied to the prevention of cross infections among newborn infants in a nursery. Research was done with two problems especially in mind, namely, those of direct contact and those of airborne organisms. The institution's elaborate technics for handling food and diapers results in a reduction in gastrointestinal infections. Similarly, the institution of air conditioning and the installation of ultraviolet ceiling lamps were followed by a reduction in cross infections. Although the extreme care used reaches almost absurd heights in the use of unit mops to clean unit floors and the hanging of unit gowns on unit hooks, no other technic capable of preventing direct contact infection has yet been devised which is superior to the principles illustrated. The technic is not difficult to follow but requires intelligence and constant vigilance. Gradually it becomes evident that these procedures become necessary in an institution where errors may result in many deaths and where every detail of conduct is subjected to unsparing criticisms by the public.

The makers of the film, and especially those who designed the experiment which leads to the convincing conclusions, deserve commendation for some carefully planned work.

This film is recommended for showing to pediatricians, nurses, hospital administrators, architects and ventilating engineers.

Preparation and Staining of Blood Films (With Special Reference to the Diagnosis of Malaria). 16 mm., color, sound, 1,610 feet (one reel), showing time twenty minutes. Produced by and procurable on loan from: U. S. Public Health Service, Communicable Disease Center, 605 Volunteer Bldg., Atlanta 3.

This film demonstrates the equipment used in the laboratory for making blood films. Every step, including preparation of stains, is shown with careful attention to detail and with commendable clarity. Nothing is left to imagination. Emphasis is placed on the preparation of thick films for the diagnosis of malaria.

The film can be recommended for teaching medical technologists, as well as interns and for courses in clinical pathology and hematology. The photography is satisfactory, although one or two drawings are rather poor.

Two sound film strips entitled "Preparing Blood Films for Microscopic Examination" and "Staining Blood Films for Malaria Parasite Examination" accompany the motion picture. They show how the slides are thoroughly cleaned and dried for usage in staining to identify malarial parasites.

Making a Good Food Better. 16 mm., color, sound, 575 feet (one reel), showing time twelve minutes. Technical supervision by Dr. E. J. Lease, nutritionist, South Carolina Experiment Station, Clemson, S. C. Prepared in 1947 by and procurable on loan from: The South Carolina Experiment Station and the Clemson College Extension Service, Clemson, S. C.

A brief but fair presentation of the case for enrichment of degerminated corn products will interest sections of the country where corn meal and corn grits constitute an important part of the diet. Photography is excellent.

The Council on Foods and Nutrition of the American Medical Association has favored the enrichment of degerminated corn products.

Bureau of Legal Medicine and Legislation

MEDICOLEGAL ABSTRACTS

Statute of Limitations: Payment on Account as Evidenced by Physician's Office Records.—The plaintiff, as assignee, filed suit to recover the balance due for professional services rendered to the defendant's wife by the physician assignor. From a judgment in favor of the plaintiff, the defendant appealed to the Supreme Court of Oregon.

Between August and December of 1934, the physician performed professional services for the defendant's wife, the reasonable value of such services being $422.35. Apparently the only payment made on this account was the sum of $10 paid on April 10, 1940. The defendant admitted that the services were rendered and that the charge therefor was reasonable. He denied, however, that any $10 payment had ever been made, and therefore contended that the plaintiff's cause of action was barred by the Oregon statute of limitations requiring actions other than on sealed instruments to be commenced within six years after the cause of action has accrued.

In order to prove the $10 payment on account, the plaintiff offered in evidence an index card record from the physician's office, relating to the defendant's account. This was a pasteboard card, 3 by 5 inches, on which were recorded the dates and nature of professional services performed by the physician for the defendant's wife and the reasonable value thereof, aggregating $422.35, and the following notation, "April 10, 1940, by cash $10.00." The defendant objected to the admission of this card in evidence on the ground "that it is merely a self-serving declaration. There is no proper foundation made for its introduction. It is a statement that a payment was made and there is no evidence to justify the introduction of that—no testimony or background or foundation made to show a payment was made

by the defendant or any one on his behalf." The physician testified that the card was the "original file card"; that most of the items written on the card were in his wife's handwriting and that she was at the time working in his office; that they were made at his direction; that these items were put down on the card each day as the services were rendered; that the sum of $10.00 "was paid and credited on" defendant's account on April 10, 1940; and that the entry "April 10, 1940, by cash $10.00" was made by him on that date immediately after such payment. The physician further testified as follows: Q. "Doctor, do you now remember the circumstance of the payment of the $10?" A. "A matter of six years has passed since that payment was made, but shortly after the payment was made I have a vivid recollection of meeting Mr. Padelford in front of the Umpqua Hotel; he stopped me and said, 'Doctor, I have paid you $10 on the account and I am going to pay $10 each month until that account is paid.' The exact circumstances of the original $10 has passed from my memory. I don't remember that."

The admissibility in evidence of this index card is governed, said the Supreme Court, to a large extent by the provisions of chapter 414, Oregon Laws, 1941, known as the "Uniform Business Records as Evidence Act." Section 1 of the act provides that the term "business" shall include every kind of business, profession, occupation, calling or operation of institutions. Section 2 of the act reads as follows: "A record of an act, condition or event, shall, in so far as relevant, be competent evidence if the custodian or other qualified witness testifies to its identity and the mode of its preparation, and if it was made in the regular course of business at or near the time of the act, condition or event, and if, in the opinion of the court, the sources of information, method and time of preparation were such as to justify its admission." Defendant contended that the index card record, with the entry of the $10.00 payment thereon, should not have been admitted in evidence for the reason that "the entrant failed to lay any foundation whatsoever that he had personal knowledge of the transaction when he made the entry and that the entry was made in conformity with such knowledge." In the instant case, said the court, the physician, who was the custodian of the index card record, testified as to its identity and the mode of its preparation. It is apparent from his testimony that the entries on this card were made in the regular course of business at or near the time that the services were performed and the $10 was paid.

It was further argued by the defendant that the $10 entry on the card record was not of itself "sufficient proof of the time it was made, and to render it competent evidence, the party asserting the fact of payment must show by other evidence than that of the person making the entry that the endorsement or entry was made before the bar of the statute of limitations attached." In the case at bar, said the court, the physician testified positively that the entry of the $10 payment was made on the date appearing in the indorsement, to wit, April 10, 1940. The underlying reason given for the rule that the creditor's entry of a payment, made before the indebtedness is barred by the statute, is competent evidence of part payment for the purpose of tolling the statute, is that such entry, made before the claim is barred, is against the interest of the creditor since he thereby reduces the amount of a valid demand.

In our opinion, the court concluded, the index card record containing the entry or indorsement of the payment of $10 on the account was admissible under the Uniform Business Records as Evidence Act. It was also admissible as evidence of a part payment on the indebtedness for the purpose of tolling the statute inasmuch as there was substantial evidence that the entry of the $10 payment was indorsed thereon by the creditor before the statute of limitations had barred action thereon. Accordingly the judgment in favor of the plaintiff was affirmed.—*Douglas Creditors Ass'n v. Padelford, 182 P. (2d) 390 (Ore., 1947).*

Medical Examinations and Licensure

COMING EXAMINATIONS AND MEETINGS

NATIONAL BOARD OF MEDICAL EXAMINERS EXAMINING BOARDS IN SPECIALTIES

Examinations of the National Board of Medical Examiners and the Examining Boards in Specialties were published in THE JOURNAL, Dec. 6, page 938.

BOARDS OF MEDICAL EXAMINERS

ALABAMA: *Examination.* Montgomery, June 22-24. 1948. Sec., Dr. D. G. Gill, 519 Dexter Ave., Montgomery 4.

CALIFORNIA: *Written Examination.* Los Angeles, March 1-4. Sec., Dr. Frederick N. Scatena, 1020 N Street, Sacramento 14.

COLORADO: * Denver, Jan. 6-9. Final date for filing application is Dec. 20. Sec., Dr. J. B. Davis, 831 Republic Bldg., Denver 2.

CONNECTICUT: * *Homeopathic Examination.* Derby, March 9-10. Sec., Dr. J. H. Evans, 1488 Chapel St., New Haven.

DELAWARE: *Examination.* Dover, Jan. 13-15. *Endorsement.* Dover, Jan. 20. Sec., Dr. J. S. McDaniel, 229 S State St., Dover.

HAWAII: *Examination.* Honolulu, Jan. 12-15, 1948. Sec., Dr. S. E. Doolittle, 881 S. Hotel St., Honolulu, T. H.

IDAHO: Boise, Jan. 13-15. Sec., Miss Estella S. Mulliner, 355 State House, Boise.

INDIANA: *Examination.* Indianapolis, June 1948. Sec., Board of Medical Registration and Examination, Dr. Paul R. Tindall, K of P Bldg., Indianapolis.

KENTUCKY: *Examination.* Louisville, June 16-18. Sec., Dr. P. E. Blackerby, 620 S. 3d St., Louisville.

MINNESOTA: * Jan. 20-22. Sec., Dr. J. F. DuBois, 230 Lowry Medical Arts Bldg., St. Paul 2.

MISSISSIPPI: *Endorsement.* Jackson, Dec. 1947. Asst. Sec., State Board of Health, Dr. R. N. Whitfield, Jackson.

MISSOURI: *Examination.* Kansas City, Jan. 19-21. Exec. Sec., Mr. John A. Hailey, P. O. Box 4, State Capitol Bldg., Jefferson City.

NEBRASKA: * *Examination.* Omaha, Dec. Dir., Bureau of Examining Boards, Mr. Oscar F. Humble, 1009 State Capitol Bldg., Lincoln.

NEW HAMPSHIRE: *Examination.* Concord, March 11-12. Sec., Board of Registration in Medicine, Dr. John S. Wheeler, 107 State House, Concord

NEW JERSEY: *Examination.* Trenton, June 15-17. Sec., Dr. E. S. Hallinger, 28 W. State St., Trenton.

NEW YORK: *Examination.* Albany, Buffalo, New York, Syracuse, Feb 16-19 Sec., Dr. J. L. Lochner, Jr., Education Bldg., Albany

NORTH CAROLINA: *Endorsement.* Pinehurst, Jan. 12. Sec., Ivan Procter, 226 Hillsboro St., Raleigh.

NORTH DAKOTA: Grand Forks, Jan. 6-9. Sec., Dr. G. M. Williamson, 4½ S Third St., Grand Forks.

OREGON: * *Examination.* Portland, Jan. 21-23. Final date for filing application is Jan. 7. *Endorsement.* Portland, Jan. 23-24. Final date for filing application is Jan. 9. Admin., Board of Higher Education, Miss L. M. Conlee, Univ. of Oregon, Eugene.

PENNSYLVANIA: *Examination.* Philadelphia, Jan. 13-16, 1948. Acting Sec., Board of Medical Education and Licensure. Mrs. M. G. Steiner, 351 Education Bldg., Harrisburg.

RHODE ISLAND: * *Examination.* Providence, Jan. 8-9. Chief, Div. of Prof. Regulation, Mr. Thomas B. Casey, 366 State Office Bldg., Providence.

SOUTH DAKOTA: * Pierre, Jan. 20. Sec., State Board of Health, Dr. Gilbert Cottam, Capitol Bldg., Pierre.

TENNESSEE: * *Examination.* Memphis, Dec. 17-18. Sec., Dr. H. W. Qualls, 1635 Exchange Bldg., Memphis.

UTAH: *Examination.* Salt Lake City, June, 1948. Asst. Dir., Department of Registration, Miss Rena B. Loomis, 324 State Capitol Bldg., Salt Lake City.

WASHINGTON: * *Examination.* Jan. Sec., Dept. of Licenses, Miss Virginia Wotherspoon, Olympia.

WEST VIRGINIA: Charleston, Jan. 12-14. Comm., Public Health Council, Dr. N. H. Dyer, State Capitol, Charleston 5.

WYOMING: *Examination.* Cheyenne, Feb. 2. Sec., Dr. G. M. Anderson, Capitol Bldg., Cheyenne

* Basic Science Certificate required.

BOARDS OF EXAMINERS IN THE BASIC SCIENCES

ARIZONA: Dec. 16. Sec., Mr. Francis A. Roy, Science Hall, University of Arizona, Tucson.

COLORADO: *Examination.* Denver, Dec. 17-18. Sec., Dr. Esther B. Starks, 1459 Ogden St., Denver.

IOWA: Des Moines, Jan. 13, April 13, July 13, Oct. 12. Sec., Dr. Ben H. Peterson, Coe College, Cedar Rapids.

MICHIGAN: *Examination.* Ann Arbor and Detroit, Jan. 9-10. Sec., Miss Eloise LeBeau, 101 N. Walnut St., Lansing.

MINNESOTA: *Examination.* Minneapolis, Jan. 6-7. Sec., Dr. Raymond N. Bieter, 105 Millard Hall, Univ. of Minnesota, Minneapolis 14.

NEBRASKA: *Examination.* Omaha, Jan. 13-14. Dir., Dept. of Health, Mr. Oscar F. Humble, Room 1009, State Capitol Bldg., Lincoln 9.

OKLAHOMA: Spring 1948. Sec., Dr. Frank Clinton Gallaher, 813 Braniff Bldg., Oklahoma City.

TENNESSEE: *Examination.* Memphis, Dec. 30-31. Sec., Dr. O. W. Hyman, 874 Union Ave., Memphis.

WASHINGTON: *Examination.* Jan. Sec., Dept. of Licenses, Miss Virginia Wotherspoon, Olympia.

Current Medical Literature

AMERICAN

The Association library lends periodicals to members of the Association and to individual subscribers in continental United States and Canada for a period of three days. Three journals may be borrowed at a time. Periodicals are available from 1937 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied with stamps to cover postage (6 cents if one and 18 cents if three periodicals are requested). Periodicals published by the American Medical Association are not available for lending but can be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted.

American Journal of Pathology, Ann Arbor, Mich.

23:679-914 (Sept.) 1947

Pulmonary Changes Following Exposure to Phosgene. S. H. Durlacher and H. Bunting.—p. 679.
Studies of Thermal Injury: II. Relative Importance of Time and Surface Temperature in Causation of Cutaneous Burns. A. R. Moritz and F. C. Henriques Jr.—p. 695.
Granular Cell Myoblastoma. V. R. Khanolkar.—p. 721.
Subcortical Fibroblastoma of the Brain: Case Report. D. Groszberg and I. J. Blumenthal.—p. 741.
Osteopetrosis: Albers-Schönberg Disease (Marble Bones) Report of a Case and Morphologic Study. B. Pines and M. Lederer.—p. 755.
Experimental Argyrosis: III. Pigmentation of Eyes of Rats Following Ingestion of Silver During Long Periods of Time. C. T. Olcott.—p. 783.
Resorption of Arterial Atheromatous Deposits in Wasting Disease. S. L. Wilens.—p. 793.
*Two Simultaneous Cases of Leprosy Developing in Tattoos. R. J. Porritt and R. E. Olsen.—p. 805.
*Intestinal Phase of Human Trichinosis. W. A. Stryker.—p. 819.
Studies on Capillary Permeability as Affected by Anoxemia. H. C. Hopps and J. H. Lewis.—p. 829.
Pathology of Malignant Catarrhal Fever (Bovine Epitheliosis): Special Reference to Cytoplasmic Inclusions. L. W. Goss, C. R. Cole and R. E. Kissling.—p. 837.
Development of Inflammatory Lesions and of Rickettsiae of Murine Typhus in the Lungs of Rats. W. Nyka.—p. 843.

Leprosy Developing in Tattoos.—Porritt and Olsen point out that there is still uncertainty concerning the transmission and the incubation period of leprosy. One of the most debated questions has been whether leprosy can be spread by the inoculation of tissue or other contaminated material from a leper into the skin of an uninfected person. The authors report 2 cases which provide strong evidence favoring the transmission of leprosy by inoculation. Both patients were members of the same unit in the United States Marine Corps. They were tattooed successively by the same man in Melbourne, Australia, on the same day in June 1943. Both developed maculoanesthetic or tuberculoid leprosy in the tattoos about two and a half years later. Both the marines and the tattooer were inebriated, and a number of needles were broken during the process. One man had multiple tattoos on his left arm, but leprosy developed only in the one made in Melbourne.

Intestinal Phase of Human Trichinosis.—Stryker says that in the necropsy service of the Department of Pathology of the University of Michigan a case of trichinosis has been observed in which living adult trichinellas, including gravid females, were demonstrated in the intestine fifty-four days after ingestion of infected pork. This is the longest period of persistence of adult trichinellas in the human intestine thus far reported, with microscopic demonstration of the adult parasites in situ. The patient was a tavern keeper, 35 years of age, who had eaten raw pork sausage prepared from a hog he had raised and butchered. In other members of his family and in neighbors who had eaten the raw meat there likewise developed trichinosis. The disease proved fatal to the father and to a daughter aged 8. Both ate large amounts of the meat. The clinical course of the father was characterized by diarrhea, muscular pain, fever and terminal respiratory distress. There were physical signs and electrocardiographic changes indicating myocardial damage; neurologic abnormalities suggested cerebral damage. The author stresses that the possibility of continued release of larvae over a period of even greater length than the reported fifty-four days must be taken into account in the management of trichinosis.

American Journal of Physiology, Baltimore

150:373-522 (Sept.) 1947. **Partial Index**

Alterations in Urogastrone Excretion Produced by Extirpation of Various Endocrine Glands. J. Kaulbersz, T. L. Patterson, D. J. Sandweiss and H. C. Saltzstein.—p. 373.
Plasmatic Cofactor of Thromboplastin: Its Adsorption, with Prothrombin and Fibrinogen, by Alumina and Tricalcium Phosphate Gels. R. Honorato.—p. 381.
Effect of Carbohydrate Feeding on Output of Urinary Amino Acid. A. A. Albanese, Virginia Irby, Jane E. Frankston and Marilyn Lein.—p. 389.
Induction of Lactation During Pregnancy in Rabbits and Specificity of Lactogenic Hormone. J. Meites and C. W. Turner.—p. 394.
Relation of Fibrinogen to Coagulation Factor which Diminished in Stored Plasma. R. Honorato and A. J. Quick.—p. 405.
Reversible Inactivation of Prothrombin: A Factor Responsible for Its Partial Reactivation. Muriel P. Munro and F. L. Munro.—p. 409.
Disappearance of Uropepsin from Urine of Gastrectomized Cats. Gladys R. Bucher and A. C. Ivy.—p. 415.
Alleged Excretion of Histamine in Parathyroidectomized Dogs. G. Misrahy and S. Salama.—p. 420.
Comparative Effectiveness of Albumin, Globin, Hemoglobin, Gelatin, Oxypolygelatin, Saline, Ringer's, Blood and Plasma upon Survival of Rats Subjected to Standardized Scald Burns. M. D. McCarthy and W. M. Parkins.—p. 423.
Bioassay of Steroid Hormones Using Aqueous Sodium Lauryl Sulfate Solution as Dispersing Agent. F. Bischoff and H. R. Pilhorn.—p. 444.
*Effect of Dietary Fat upon Gastric Evacuation in Normal Subjects. J. H. Annegers and A. C. Ivy.—p. 461.
Systemic Blood Pressure as Factor in Absorption of Saline from Small Intestine. J. C. Stickney, D. W. Northup and E. J. van Liere.—p. 466.
Physiological Effects of Plasma Protein: Blood Pressure, Leukocyte Concentration, Smooth and Cardiac Muscle Activity. M. M. Guest, R. C. Murphy, S. R. Bodnar and others.—p. 471.
Adrenal Response to Total Body X-Radiation. H. M. Patt, M. N. Swift, E. B. Tyree and E. S. John.—p. 480.
Experimental Study of Intramuscular Pressure Measurements. C. Moses.—p. 488.
Effects of Anoxemic Anoxia on Excitability Conduction and Refractoriness of Mammalian Cardiac Muscle. A. S. Harris and W. P. Matlock.—p. 493.
Use of Acetylcholine in Objective Determination of Circulation Time and Fractionation of Vascular Bed Traversed. M. Wilburne, J. G. Schlichter, M. Grossman and F. Cisneros.—p. 504.
Effects of Dietary Caloric Restriction on Maturity and Senescence, with Particular Reference to Fertility and Longevity. Zelda B. Hall, R. H. Barnes and M. B. Visscher.—p. 511.

Effect of Dietary Fat on Gastric Evacuation.—Annegers and Ivy say that the effect of fat as it occurs in normally constituted mixed meals on gastric evacuation has not been studied previously, because available methods for measuring gastric emptying were poorly adapted to the use of such meals. A new method for detecting changes in the volume of the gastric contents has been devised which permits use of meals of any desired composition and does not interfere with normal gastric activity. In the present study the gastric evacuation of mixed meals containing various amount of lard and hydrogenated vegetable oil ("crisco") has been determined. Thirty normal subjects were given 1,500 calory test meals of constant weight and volume and containing varibus amounts of fat, hydrogenated vegetable oil accounting for smaller or larger portions of the total. Delayed gastric evacuation attributable to the fat content of the test meal was statistically significant. Subjects showed delayed gastric evacuation when the fat was increased. No significant differences were found between lard and hydrogenated vegetable oil in their effect on gastric emptying. No gastrointestinal symptoms followed test meals with either lard or hydrogenated vegetable oil.

American Practitioner, Philadelphia

2:1-70 (Sept.) 1947

Newer Antihistaminic Drugs in Treatment of Allergic States. L. Tuft.—p. 1.
Clinical and Therapeutic Aspects of Acute Renal Insufficiency Due to Lower Nephron or Hemoglobinuric Nephrosis. C. H. Burnett.—p. 6.
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Practical Considerations of Electroencephalography for the Practitioner. E. W. Busse and F. G. Ebaugh.—p. 27.
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Critique on Diagnosis and Treatment of Cortical Adrenal Disease. J. M. Rogoff.—p. 39.
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Anesthesiology, New York

8:453-566 (Sept.) 1947

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Vision and Daring of Youth: Story of Introduction of Surgical Anesthesia. J. F. Fulton.—p. 464.
Ether Anesthesia: Yesterday, Today and Tomorrow. A. H. Miller.—p. 471.
Curare: Its Past and Present. S. C. Cullen.—p. 479.
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Anesthesia: XXIX. Potency and Safety of Certain Anesthetic Ethers. J. C. Krantz Jr., C. J. Carr, H. K. Iwamoto and Mary Jane Sauerwald.—p. 497.
Treatment of Pulmonary Embolus by Stellate Block. W. E. Bageant and L. A. Rapee.—p. 500.
Study of Bronchoconstrictor and Hypotensive Actions of Curarizing Drugs. C. M. Landmesser.—p. 506.
Studies on Diffusion Respiration: III. Alveolar Gases and Venous Blood p_H of Dogs During Diffusion Respiration. W. B. Draper, R. W. Whitehead, and J. N. Spencer.—p. 524.

Annals of Internal Medicine, Lancaster, Pa.

27:347-486 (Sept.) 1947

Mechanism of Recovery in Acute Bacterial Pneumonia. W. B. Wood Jr.—p. 347.
*BAL in Treatment of Toxicity from Gold. H. M. Margolis and P. S. Caplan.—p. 353.
Origin and Physiology of Heparin: Specific Therapy in Thrombosis. E. Jorpes.—p. 361.
*Use of Dicumarol as Anticoagulant: Experience in 2,307 Cases. E. V. Allen, E. A. Hines Jr., W. F. Kvale and N. W. Barker.—p. 371.
Some Observations on Bleeding Tendency in Thrombocytopenic Purpura. G. Allen, G. Bogardus, L. O. Jacobson and C. L. Spurr.—p. 382.
Value of Spinal Fluid Examination as Diagnostic Procedure in Weil's Disease. W. H. Cargill Jr. and P. B. Beeson.—p. 396.
Pressor Activity of Desoxycorticosterone Acetate in Normotensive and Hypertensive Subjects. G. A. Perera and D. W. Blood.—p. 401.
Dissecting Aneurysm of Aorta: Review of 17 Autopsied Cases of Acute Dissecting Aneurysm of Aorta Encountered at Massachusetts General Hospital from 1937 to 1946 Inclusive, Eight of Which Were Correctly Diagnosed Ante Mortem. P. David, E. M. McPeak, E. Vivas-Salas and P. D. White.—p. 405.
Use of Folic Acid in Treatment of Anemia of Rheumatoid Arthritis—Preliminary Report. C. A. L. Stephens Jr., Alice L. Borden, W. P. Holbrook and D. F. Hill.—p. 420.
Heart Rate in Malaria; Review of 90 Cases. S. M. Mellinkoff and J. R. Higgins.—p. 433.

BAL in Treatment of Toxicity from Gold.—Margolis and Caplan employed BAL (2,3-dimercaptopropanol) in the treatment of toxic reactions resulting from the administration of gold in rheumatoid arthritis. In 2 of their 5 cases BAL appeared to be of distinct benefit. In 1 of these severe stomatitis from the administration of aurothioglucose responded dramatically. In the other patient, mild conjunctivitis, anal ulceration and dermatitis resulting from aurothioglycolanilide cleared entirely. In 2 cases of long-standing generalized exfoliative dermatitis resulting from aurothioglycolanilide, BAL appeared to have induced amelioration of the dermatitis. In the fifth case, mild dermatitis resulting from the administration of aurothioglycolanilide, no appreciable benefit from the use of BAL could be noted. The authors advise that BAL be used early in the treatment of toxic effects resulting from the administration of gold.

Use of Dicumarol as Anticoagulant.—Allen and his associates of the Mayo Clinic evaluate the clinical use of dicumarol in the light of six years' experience. Expert use of anticoagulants, heparin and dicumarol, has greatly improved the outlook for patients with acute vascular thrombosis. The following results were obtained from postoperative use of anticoagulants in 1,513 patients: Eighty-five patients survived who would have been expected to die from pulmonary embolism; 250 patients were spared venous thrombosis or nonfatal pulmonary embolism. In 506 additional postoperative cases in which dicumarol was used prophylactically, venous thrombosis occurred in but 2 instances; there was no pulmonary embolism. Fatal pulmonary embolism was prevented by anticoagulants in 288 medical patients. Nonfatal pulmonary embolism and venous thrombosis occurred infrequently. A study of 50 cases of acute myocardial infarction indicates reduction in the incidence of further myocardial infarction and in arterial embolism and venous thrombosis. Survival of the extremity occurred in 91 per cent of cases of arterial embolism and in 81 per cent of cases of arterial thrombosis, if treatment with anticoagulants was begun early and supplemented by other treatment. The use of anticoagulants constitutes the greatest contribution to the successful treatment and prevention of intravascular thrombosis and embolism.

Archives of Dermatology and Syphilology, Chicago

56:283-406 (Sept.) 1947

Role of Clinician in Modern Dermatology: President's Address. M. Rayner.—p. 283.
Electrolysis Versus High Frequency Currents in Treatment of Hypertrichosis: Comparative Histologic and Clinical Study. F. A. Ellis.—p. 291.
Vitamin A in Darier's Disease. A. D. Porter, E. W. Godding and S. R. Brunauer.—p. 306.
*Treatment of Cutaneous Tuberculosis with Large Doses of Vitamin D_2, H. E. Michelson and R. J. Steves.—p. 317.
*Cutaneous Reactions to Penicillin. H. J. Templeton, C. J. Lunsford and H. V. Allington.—p. 325.
*Therapy of Early Syphilis with Massive Doses of Penicillin. H. N. Bundesen, L. Loewe, R. M. Craig and others.—p. 339.
Penicillin in Treatment of Experimental Syphilis of Rabbits: III. Therapeutic Activity of Penicillin by Oral Administration. J. A. Kolmer.—p. 344.
*Prenatal Syphilis: Prevention by Use of Penicillin in Treatment of Pregnant Women with Early Infectious Syphilis. H. C. S. Aron, R. L. Barton and T. J. Bauer.—p. 349.
Cutaneous Diphtheria: Report of 10 Cases. J. M. Church and P. Mason.—p. 357.
Cutaneous Diseases in Army Air Force Personnel. O. Canizares.—p. 364.
Aminophylline as Antipruritic Agent: II. Intramuscular Injection. E. Epstein.—p. 373.
Comedos Localized in Temporozygomatic Area. C. Doucas.—p. 376.
Otorhinophyma, Pruritus and Alopecia Totalis Syndrome: Response to Testosterone. S. Ayres Jr. and A. K. Jensen.—p. 379.

Vitamin D_2 in Cutaneous Tuberculosis.—Michelson and Steves used a modification of the methods suggested by Fanielle and Charpy in 6 patients who had been under observation from two to five months. There were 2 patients with lupus vulgaris, 1 with tuberculosis colliquativa and 3 with erythema induratum. All except the case of tuberculosis colliquativa were old cases which had resisted previous therapy. The results were less dramatic than had been expected from a study of the French reports, but each patient has shown an initial and progressive improvement. None are as yet cured. Viosterol in oil was used in a dosage of 150,000 international units daily. An adequate intake of calcium was assured by having the patients drink at least 1 quart (1.136 liters) of milk daily. The authors suggest the use of propylene glycol as a vehicle for viosterol.

Cutaneous Reactions to Penicillin.—Templeton and his associates say that since penicillin takes from the fungus Penicillium and the culture medium substances which are known to be potential antigens, it would be reasonable to predict that penicillin would be capable of producing the same types of allergic reactions as would these parent substances. On the basis of their own observations and those of their colleagues they conclude that penicillin given by topical application, by oral ingestion or by injection sensitizes a certain percentage of persons. The reactions most frequently seen are contact dermatitis and urticaria. Cutaneous reactions to penicillin may be lowered in incidence by a proper selection of cases. Patients whose skins are in unstable equilibrium because of some exudative dermatosis are poor risks with penicillin either topically applied or injected. If there is an added secondary pyogenic infection, penicillin may be given cautiously. If improvement does not occur in three to five days administration of penicillin should probably be discontinued, as longer periods of use are more apt to sensitize the patient. It is permissible to use penicillin topically in simple pyoderma or impetigo, as it usually effects cures in these diseases in the safe period of the first week, before sensitization is likely to occur.

Massive Doses of Penicillin in Early Syphilis.—Bundesen and his associates treated 129 patients with clinical evidence of primary or secondary syphilis with 10,000,000 units of penicillin administered by intravenous drip over a twenty-four hour period. All revealed lesions which on dark field examination were positive for Treponema pallidum. The relapse rate in these patients was so high as to render this treatment unsuitable for early syphilis. In 51 of 129 patients relapse occurred in four months or less.

Penicillin in Pregnant Women with Early Syphilis.—According to Aron and his associates transmission of syphilis to the fetus occurs much more frequently when pregnant women have syphilis in the early infectious stages than in the later stages. The efficacy of a therapeutic procedure in preventing prenatal syphilis, therefore, will be evaluated most reliably by the effect on the offspring of mothers who during pregnancy had indisputable early infectious syphilis. The authors did not observe a single case of congenital syphilis in a group of 35 infants whose mothers were treated with penicillin for early infectious syphilis during pregnancy. One infant was stillborn, possibly because of syphilitic infection. In a comparable group of 28 infants whose mothers had early infectious syphilis during pregnancy and had received intensive arsenotherapy, congenital syphilis developed in 3 infants. These observations on the Chicago group are in agreement with the observations on the Philadelphia and Baltimore groups. The results for the three groups combined give an over-all incidence of 2.1 per cent of failure to prevent prenatal syphilis by the use of penicillin in the treatment of infectious syphilitic mothers during pregnancy as compared with 15 per cent of failure to prevent the disease in the infants by intensive arsenotherapy of the mothers which was reported in the literature. The authors conclude that penicillin is unexcelled among the drugs used to prevent prenatal syphilis.

Archives of Neurology and Psychiatry, Chicago

58:251-390 (Sept.) 1947

Rate of Regeneration in Human Peripheral Nerves: Analysis of Interval Between Injury and Onset of Recovery. S. Sunderland.—p. 251.

A Rational Subdivision of Cerebral Cortex. I. N. Filimonoff.—p. 296.

Physiology and Therapy of Convulsive Disorders: I. Effect of Anticonvulsant Drugs on Electroshock Seizures in Man. J. E. P. Toman, S. Loewe and L. S. Goodman.—p. 312.

*Influence of Anxiety on Attention, Learning, Retention and Thinking. O. Diethelm and M. R. Jones.—p. 325.

*Effect of Quinacrine (Atabrine) on Central Nervous System: Clinical and Electroencephalographic Studies. G. L. Engel, J. Romano and E. B. Ferris.—p. 337.

Vitamin E in Treatment of Mental Disorders. S. T. Michael and A. H. Ruggles.—p. 351.

Sodium Amytal in Treatment of Aphasia. L. Linn.—p. 357.

Influence of Anxiety on Attention, Learning, Retention and Thinking.—Diethelm and Jones selected a group of tests for the study of active and passive attention, learning, retention, immediate memory and thinking. Anxiety appears to decrease active and passive attention. Learning on the maze test was slower in the presence of anxiety. Ability to retain, tested by repetition of the maze test twenty-four hours after it was learned, was affected unfavorably by anxiety. Thinking was studied by means of the Kohs-Block test. It seems that anxiety decreases the score significantly with most patients, but there is a small group which is influenced little. The influence of anxiety in the different experiments was not uniform. It may happen that one or the other of the aforenoted functions is affected little, whereas all or the majority of the remaining functions are affected to a pronounced degree. The possible influence of anxiety on the various functions which are tested in the current type of psychiatric examination has to be considered more seriously than has been done heretofore.

Quinacrine and Central Nervous System.—Engel and his associates made clinical and electroencephalographic observations on 5 normal adults during the administration of quinacrine hydrochloride ("atabrine"). The daily dose ranged from 0.2 to 1.2 Gm. until the plasma level exceeded 100 micrograms per liter or until the severity of symptoms led to discontinuation. The administration of the drug did not exceed ten days. In all cases evidence of pronounced psychologic stimulation occurred, and the electroencephalogram showed a significant shift toward faster frequencies. These manifestations appeared by the third day and persisted for six to eight days after the drug had been discontinued, and until the plasma level had fallen to less than 40 micrograms per liter. These data constitute evidence that quinacrine acts as a cortical stimulant.

Archives of Surgery, Chicago

55:101-238 (Aug.) 1947

Mechanism of Acute Abdominal Distention: Some Observations. C. R. Morris, A. C. Ivy and W. G. Maddock.—p. 101.

SYMPOSIUM ON PEPTIC ULCER

Effect of Enterogastrone on Mann-Williamson Ulcers in Dogs. H. C. Saltzstein, D. J. Sandweiss, J. M. Hammer and others.—p. 125.

Effect of Vagotomy on Mann-Williamson Ulcers in Dogs. H. C. Saltzstein, D. J. Sandweiss, J. M. Hammer and others.—p. 130.

*Section of Vagus Nerves to Stomach in Treatment of Benign Gastric Ulcer. P. V. Harper Jr. and L. R. Dragstedt.—p. 151.

*Gastric Neurectomy: Anatomic and Physiologic Studies with Favorable and Unfavorable Results in Treatment of Peptic Ulcer. W. Walters, H. A. Neibling, W. F. Bradley and others.—p. 151.

Resection of Vagus Nerves for Ulcer: Interim Evaluation: I. Operative Technic and Hospital Management. F. D. Moore.—p. 164.

Clinical Evaluation of Complications Observed After Transthoracic Vagotomy. K. S. Krimson, G. J. Baylin, H. M. Taylor, F. H. Hesser and R. W. Rundles.—p. 175.

Effect of Vagotomy on Development of Mann-Williamson Ulcer in Dog. J. V. Oliver.—p. 180.

Denervation of Stomach: Historical Review. J. T. Small.—p. 189.

Use of Buffer Thrombin in Treatment of Gastric Hemorrhage: Preliminary Report. B. M. Daly.—p. 208.

Progress in Orthopedic Surgery for 1945: XXII. Amputations, Apparatus and Technic. J. W. White and C. J. Frankel.—p. 213.

Id.: XXIII. Research. A. R. Shands Jr. and M. H. Morris.—p. 225.

Section of Vagus Nerves in Gastric Ulcer.—Harper and Dragstedt say that during the past four years section of the vagus nerves to the stomach has been carried out at the University of Chicago in 250 patients with various types of peptic ulcer. The clinical results following this treatment have been so satisfactory that it has replaced all other types of surgical treatment for this disease on their service. The side effects of section of the vagus nerves, such as symptoms of delayed gastric emptying and diarrhea, have proved to be transitory and inconsequential. The operation was performed in 147 patients with duodenal ulcer, in 15 patients with gastrojejunal ulcer and in 8 patients with gastric ulcer. The present paper is concerned with the last group. All the ulcers that were unquestionably benign healed promptly after the total section of the vagus nerves. Treatment of gastric ulcer is largely determined by the fact that at present an accurate differential diagnosis between gastric ulcer and carcinoma cannot be made. Perhaps 20 per cent of lesions in the stomach that appear to be benign ulcers on the basis of the clinical picture and roentgen and gastroscopic examination prove to be carcinomas when studied by histologic methods. An exception are those cases with coexistent active duodenal ulcers, in which the incidence of carcinoma is considerably less than 1 per cent. Thus the presence of an active duodenal ulcer suggests that the associated ulcer in the stomach is benign. These lesions can be treated satisfactory by gastric vagotomy. Should all other chronic ulcerating lesions in the stomach be treated by gastrectomy? When the lesion is in the antrum or body of the stomach and when a subtotal gastrectomy will suffice, it seems wise to employ this procedure. When the lesion lies high on the lesser curvature near the esophagus, a resection would mean a total gastrectomy, with a high operative mortality and digestive and nutritive disability in many of those that survive. It should not be employed unless the diagnosis of malignant growth is certain. In this group vagotomy may be useful. If the lesion is benign, section of the vagus nerves may bring about prompt healing. If healing does not occur within four to six weeks, the surgeon has additional evidence of malignancy and can undertake a total gastrectomy with a clearer conscience.

Gastric Neurectomy in Peptic Ulcer.—Walters and associates studied the problem of resection of vagus nerves, or, as they prefer to call the operation, "gastric neurectomy," from the anatomic, physiologic and chemical standpoint in 40 patients operated on by one of them at the Mayo Clinic up to Jan. 15, 1947. The results of gastric neurectomy appeared to be inconstant, variable and in most cases unpredictable. The relief of pain obtained may be the result of the release of gastrospasm and a reduction in gastric acidity as a result of the interruption of cephalic stimulation. The expense of this relief of pain is dilatation of the stomach with frequent troublesome retention of

gastric secretion and in some cases of remnants of food. Although the pain may be relieved, the ulcer is not necessarily healed, as cases have been reported in which unsuspected acute perforation of duodenal ulcer developed. In 1 case gastric ulcer recurred, and in other cases failure of the ulcers to heal has been demonstrated at subsequent operations necessitated by a continuation of bleeding or gastric retention. Reduction in gastric acidity, although it has occurred in most cases, is inconstant in others, and disturbances of motility of the stomach and small intestines are frequent after operation. In some cases these disturbances are temporary, in others prolonged and troublesome. Subsequent operations have been necessary in some cases to remove the persistent ulcer or to provide drainage. There were 3 hospital deaths in 83 cases. Although 2 of these could be attributed to cardiovascular accidents, 1 patient died of unsuspected perforated duodenal ulcer with a subdiaphragmatic abscess. Gastroenterostomy had been performed at the time of the gastric neurectomy. The greatest field of usefulness for gastric neurectomy seems to be in ulcers after partial gastrectomy and in certain cases of nonobstructive duodenal ulcers in which the cephalic phase of gastric secretion is well defined and pain is intractable. In view of the ability of the gastrointestinal tracts of human beings, like those of animals, to regain their function through compensatory mechanisms after operative procedures which disturb the neuromuscular continuity, the possibility of such a return in human beings must be kept in mind. For the time being gastric neurectomy will have to be considered as in the investigative stage.

Arizona Medicine, Phoenix

4:1-92 (Sept.) 1947

*Beryllium Granulomatosis—Alias Miliary Sarcoid, Salem Sarcoid, Miliary Sarcoidosis, Chronic Beryllium Poisoning, or Delayed Chemical Pneumonitis: Description and Report. J. Pyre and W H. Oatway Jr.—p. 21.

Physical Examination of the Lungs. J. A. Greene.—p. 29.

Care of Thoracic Injuries. P. C. Samson.—p. 32.

Thrombosis of Axillary and Subclavian Veins. C. S. Mills.—p. 40.

Role of Potassium Chloride in Electrolyte Replacement. A. I. Podolsky. —p. 42.

BAL In Treatment of Arsenic Poisoning. L. G. Jekel.—p. 46.

Effect of Altering Calcium Content of Immature Rabbits on Serologic Results. E. L. Breazeale and L. F. Pierce.—p. 47.

Beryllium Granulomatosis.—Pyre and Oatway report 1 case of beryllium granulomatosis or chronic beryllium poisoning with vascular involvement in a man aged 34. From September 1940 to March 1941 it was his job to coat fluorescent tubes with a liquid containing beryllium oxide and zinc oxide and to mix liquids and powder into the solution which he used for the coating. There was always a residue on his hands and clothes from spillage. From April 1941 until the fall of 1945, when his illness began, he was employed with another company for which he assembled motors. The first symptom was headache followed by loss of weight, anorexia, shortness of breath, cough, nervousness and insomnia. Dusky purplish papules 1 to 3 mm. in size were present on the dorsum of the hands and fingers. Fine rales were heard at the apexes of both lungs. There developed an intermittent hypertension associated with blood and urine changes of renal dysfunction and an elevated spinal fluid pressure. There was slight general hypertrophy of lymph nodes. Disseminated pulmonary fibrosis with multiple discreet nodulations throughout both lungs were revealed by roentgenologic examination in August 1946. The papules on the hands showed transient slight remissions and recurrences. The paroxysmal cardiac irregularity accentuated a passive congestion of the liver. Emphysema was a complicating factor. Hematemesis occurred; this could have been due to the hypertension, back pressure from the right side of the heart or venous engorgement from hepatic lesions. Tuberculin tests were negative. Diphtheroids were not found in the sputum, but a biopsy of skin was positive. Neoarsphenamine, the sulfonamide drugs and penicillin had no effect on the granulomatosis. All cases of sarcoidosis should be investigated from the standpoint of occupational history. Beryllium compounds must be handled as potentially dangerous materials.

Bulletin of Johns Hopkins Hospital, Baltimore

81:1-78 (July) 1947

Studies on Intravascular Thromboplastic Effect of Tissue Suspensions in Mice: I. Reaction of Mice to Intravenous Injections of Sedimentable Tissue Component. L. Thomas.—p. 1.

Id.: II. Factor in Normal Rabbit Serum Which Inhibits Thromboplastic Effect of Sedimentable Tissue Component. L. Thomas.—p. 26.

Polymyxin: New Chemotherapeutic Agent. P. G. Stansly, R. G. Shepherd and H. J. White.—p. 43.

5-Halo-2-Thenyl Derivatives of N,N-Dimethyl-N'-2-Pyridyl-Ethylenediamine as Antihistaminics. J. T. Litchfield Jr., Maxine R. Adams, Louise Goddard, Marion S. Jaeger and Lillian Alonso.—p. 55.

Podophyliotoxin: Preliminary Note. M. Sullivan and K. Blanchard. —p. 65.

Bull. of U. S. Army Med. Dept., Washington, D. C.

7:739-818 (Sept.) 1947

Physical Reconditioning. B. A. Strickland Jr. and C. W. Morgan. —p. 768.

Tolerance to Acceleration in Automatic Pilot Ejection Seat. W. H. Ames.—p. 776.

Dental Treatment at a Separation Center. A. Sorum.—p. 786.

Bleeding Gums in Army Personnel. A. E. Light.—p. 789.

Research in Virus Diseases. J. E. Smadel.—p. 795.

Combat Record of Psychoneurotic Patients. D. Pratt and A. Neustadter.—p. 809.

California Medicine, San Francisco

67:153-210 (Sept.) 1947

Proctology for General Practitioner. R. A. Scarborough.—p. 153.

Blood Protein Depletion in Infantile Eczema. L. Z. Wolpe.—p. 156.

Blalock Operation for Congenital Pulmonary Stenosis. H. B. Stephens. —p. 160.

Simplified Intestinal Intubation with Miller-Abbott Tube. H. M. Young. —p. 166.

Anesthesia for Chronic Poliomyelitis Patient. N. H. Lewis.—p. 168.

Use of Antibiotics in Surgical Practice. H. L. Silvani.—p. 171.

Acute Ileocolitis: Case Report. M. Marks.—p. 177.

Medical Progress: Recent Progress in Pulmonary Mycotic Infections. C. E. Smith.—p. 179.

Diagnosis and Radiation Therapy of Cancer. R. R. Newell.—p. 186.

Connecticut State Medical Journal, Hartford

11:805-884 (Oct.) 1947

*Indications for Thoracolumbar Sympathectomy in Advanced Essential Hypertension with End Results of Operation in 375 Cases. J. W. Hinton.—p. 805.

Analysis of Thirty-Four Cases of Carcinoma of Rectum and Rectosigmoid Treated by One Stage Combined Abdominoperineal Resection at Waterbury Hospital, 1940 to 1946 Inclusive. C. H. Cole.—p. 808.

Cancer of Prostate. C. H. Neuswanger.—p. 813.

Carcinoma of Prostate: Waterbury Hospital, 1932 to 1946 Inclusive. H. J. Stettbacher.—p. 814.

Cream Injections as Aid in Visualization of Tracts of Fistula-In-Ano. M. Levinsky and M. S. Popkin.—p. 817.

Physiologic and Antibiotic Therapy of Bronchial Asthma. A. L. Barach. —p. 819.

If Child Guidance Clinics—Why Not Parentoriums? C. C. Burlingame. —p. 829.

Modern Influences in Medical Practice: Undergraduate Medical Education. D. W. Clark.—p. 833.

State Program for Chronically Sick. A. N. Creadick.—p. 836.

Thoracolumbar Sympathectomy in Advanced Essential Hypertension.—Hinton stresses the importance of clearcut indications in accepting or rejecting advanced cases of hypertension for operation. Death occurring six months postoperatively indicates an unwise selection of patients for thoracolumbar sympathectomy. The only exception to this rule is the case in which papilledema has produced total blindness, and operation is performed to restore vision. Four organs are considered in making the selection: the eyes, the brain, the heart and the kidneys, the rating 0 to plus 4 being used, according to the extent of disease in each organ. Operation is indicated in all cases in which there is no contraindication and for patients with persistent hypertension associated with minimal changes in any one of the four systems. Contraindications to thoracolumbar sympathectomy are: 4 plus renal disease; 4 plus cardiac disease in which congestive heart failure is unremitting, or if coronary occlusion occurs within three months; 4 plus cerebral disease, if confusion exists or if a stroke occurs within three months; if there are two 4 pluses other than the eyes; if the total plus count equals 11 or more. If the author had adhered to these rules in consideration of the 375 cases, the number of cases accepted for operation should have been 320, and the operative mortality 8. The minimum operation done in about half

of the 375 cases included nine thoracic ganglions through the second lumbar ganglion with removal of the greater, lesser and least splanchnic nerves. The operative procedure since then has been much more extensive. It should include the third thoracic ganglion through the third lumbar ganglion with all the splanchnic nerves. The more radical the operation the higher the mortality, but also the better the end results.

Diseases of Chest, Chicago

13:189-294 (May-June) 1947

Tuberculous Veteran, Plans for His Future Care. R. A. Wolford. —p. 189.
Tuberculosis Program in Grand Rapids, Michigan. J. V. Sherwood. —p. 202.
*Penicillin in Acute Suppurations of Lung. D. G. Alarcon.—p. 211.
Treatment of Spontaneous Pneumothorax. E. R. Movitt, J. V. Smith and L. Eloesser.—p. 221.
Plea for Increased Caution in Use of Surgical Collapse Therapy for Pulmonary Tuberculosis. W. W. Coulter Jr. and S. E. Thompson. —p. 237.
*Intrapleural Pneumonolysis. J. B. Andosca and J. A. Foley.—p. 248.
Conservative Management of Hemothorax with Presentation of Illustrative Case. E. P. Sauer.—p. 253.

Penicillin in Acute Pulmonary Suppurations.—Alarcon shows that since penicillin has been available few acute abscesses of the lung have reached the surgical stage, as most of them resolve before surgical intervention is imperative. Among the last 10 cases observed by the writer in the last two years, only one required operation on account of pleural complication of the abscess and none has undergone the usual thoracotomy. This situation is different from that of a few years ago, when about 50 per cent of pulmonary abscesses needed surgical treatment around the second month. After reviewing 8 cases of pulmonary suppurations in which penicillin was employed, Alarcon stresses that the bronchoscopic approach to the purulent focus is imperative when the intramuscular administration of penicillin elicits no response. In the cases reviewed the combined intramuscular and bronchoscopic administration of penicillin should be credited with the good results because earlier experience with the bronchoscope alone was less successful than the combination of these two methods. Under the influence of penicillin cavities become sterile before they close, hence, clinical and hematologic improvement are more reliable criteria of the efficacy of treatment than is roentgenoscopy.

Intrapleural Pneumonolysis.—Andosca and Foley think that intrapleural pneumonolysis should be employed whenever the indication for it arises in the course of pneumothorax therapy. From 1934 to 1944 inclusive, 612 patients at the Boston Sanatorium were submitted to thoracoscopy. In 79 of these patients a pneumonolysis was not attempted because it was considered dangerous due to the character of the adhesions. In the remaining 533 patients a total of 605 pneumonolyses were performed. The Coryllos thoracoscope and galvanocautery was employed in every case. The optimum time for pneumonolysis is two to three months after the induction of pneumothorax. Conversion of sputum to negative was effected in 63 per cent of the patients operated on. Intrapleural pneumonolysis is a highly valuable operation in helping to bring about a satisfactory and effective collapse, but it is not without danger.

Georgia Medical Association Journal, Atlanta

36:343-384 (Sept.) 1947

The Later Years. E. L. Bortz.—p. 343.
*Experiences with a New Method for Control of Intrathoracic Aneurysms. O. A. Abbott.—p. 355.
Clinical Significance of Hemoptysis: Study of 1,316 Patients with Chest Disease. O. A. Abbott and W. A. Hopkins.—p. 360.
Neostigmine for Black Widow Spider Bite. J. E. Beck.—p. 372.

Control of Intrathoracic Aneurysms.—Abbott reports 14 patients with aneurysms involving the major thoracic vessels. The majority of the patients treated had aneurysms of syphilitic origin. "Polythene cellophane (PT 300)" was wrapped about the aneurysm resulting in a decrease in the size of the lesion and relief of pain. Patients with such lesions who have associated atelectasis demand preliminary thoracic decompressive operative procedures. Results of this type of procedure, to date, have been sufficiently satisfactory to warrant continued application for the control of nonresectable aneurysmal disease of thoracic vessels.

Illinois Medical Journal, Chicago

92:141-200 (Sept.) 1947

Man Looks to Medicine. A. M. Schwitalla.—p. 155.
*Bulbar Poliomyelitis: Diagnosis and Treatment. A. B. Baker.—p. 160.
Poliomyelitis: Review of 225 Cases, Rural and Urban Patients. A. L. Hoyne and P. J. Cotsirilos.—p. 164.
Clinical Values of Kahn Quantitative Test. H. M. Spinka.—p. 168.
Effects of Intravenous Fluids Post-Operatively on Bleeding and Coagulation Time. A. Kraft and W. Wolf.—p. 170.
Treatment of Rheumatoid Arthritis: Results with a New Gold Compound of Low Toxicity. P. A. Rose.—p. 175.
Subacute Bacterial Endocarditis Due to B. Tularense, Treated by Streptomycin. A. W. Wise and W. A. Miller.—p. 182.

Bulbar Poliomyelitis.—Baker says that during the recent epidemic of poliomyelitis in Minnesota, 183 patients with bulbar poliomyelitis were admitted to the University of Minnesota hospitals. On the basis of clinical symptomatology and supported by pathologic observation it has been found possible to divide bulbar poliomyelitis into four groups. These groups are classified in accordance with the predominant symptoms, but the groups merge into each other and probably do not occur in pure form. The classification proposed is as follows: (1) the cranial nerve nuclei group; (2) the respiratory center group; (3) the circulatory center group, and (4) the encephalitic group. The author stresses these factors in the treatment: early elective tracheotomy; adequate suction of the pharynx and tracheotomy; oxygen mixtures up to 40 per cent oxygen under positive pressure if pulmonary edema is expected; adequate humidification of the gas mixture; a careful checking of the oxygenation of the patient by means of arterial oxygen determinations and the use of the oximeter; frequent moving of the patient to avoid hypostasis and thrombophlebitis; maintenance of nutrition by nasal feeding; the use of penicillin prophylactically; the avoidance of sedative drugs and the use of stimulants; early closure of the tracheotomy, and unceasing watchfulness on the part of physician and special nurses, with the realization that mechanical devices are far from foolproof.

Journal of Bacteriology, Baltimore

54:101-282 (Aug.) 1947. **Partial Index**

Antigenicity of Crystalline Lysozyme. J. Smolens and J. Charney. —p. 101.
Pigment Production and Antibiotic Activity in Cultures of Pseudomonas Aeruginosa. G. Young.—p. 109.
Mode of Action of Nitrofuran Compounds: II. Applications of Physicochemical Methods to Study of Action Against Staphylococcus Aureus. D. L. Cramer.—p. 119.
*Cytochemical Mechanisms of Penicillin Action: II. Changes in Reactions of Staphylococcus Aureus to Vital Dyes. R. Pratt and Jean Dufrenoy. —p. 127.
Microbic Decomposition of Pantothenic Acid. W. I. Metzger.—p. 135.
Clostridia in Gas Gangrene and Local Anaerobic Infections During Italian Campaign. A. H. Stock.—p. 169.
Rough-Smooth Dissociation of Neisseria Intracellularis. Florance L. Evans.—p. 175.
Description of Strain C 27: A Motile Organism with Major Antigen of Shigella Sonnei Phase I. W. W. Ferguson and N. D. Henderson. —p. 179.
Morphology of Escherichia Coli Exposed to Penicillin as Observed with Electron Microscope. A. J. Shanahan, A. Eisenstark and F. W. Tanner.—p. 183.
Growth Responses of Sulfonamide-Requiring Mutant Strain of Neurospora. S. Emerson.—p. 195.
Biotin and Synthesis of Aspartic Acid by Microorganisms. J. L. Stokes, Alma Larsen and Marion Gunness.—p. 219.
Morphology of L1 of Klieneberger and Its Relationship to Streptobacillus Moniliformis. L. Dienes.—p. 231.
Products of Anaerobic Glycerol Fermentation by Streptococci Faecalis. I. C. Gunsalus.—p. 239.
"Reversal," Neutralization, and Selectivity of Germicidal Cationic Detergents. M. Klein and Zelma G. Kardon.—p. 245.
*Tuberculostatic and Tuberculocidal Properties of Streptomycin. Dorothy G. Smith and S. A. Waksman.—p. 253.

Cytochemical Mechanisms of Action of Penicillin.—Pratt and Dufrenoy discuss the cytochemical changes that occurred in different parts of bacterial cells exposed to bacteriostatic or bactericidal concentrations of penicillin. The first evidence of the effect of penicillin on Staphylococcus aureus was failure of the dividing organism to apportion vacuolar material to daughter cells. This was followed by failure of the vacuoles to retain material normally encompassed therein. These changes were manifest in cells under the influence of penicillin, first by loss of the ability to accumulate vital dyes in the vacuolar solution and second by dispersion of the vacuolar solution, originally

located in a central body, toward the periphery of the swelling cell. This resulted in diffuse staining with vital dyes, with a relatively high concentration of the dye at the periphery of each cell. The use of appropriate reagents showed that lipids were displaced from cells undergoing lysis under the influence of penicillin and that the liberated lipids were hydrolyzed into fatty acids.

Tuberculostatic and Tuberculocidal Properties of Streptomycin.—Smith and Waksman demonstrate that streptomycin has not only a bacteriostatic but also a definite bactericidal action on different strains of Mycobacterium tuberculosis. In a growing culture of tubercle bacilli there was a decrease rather than an increase in the proportion of streptomycin-resistant cells with an increase in age of the culture. When streptomycin and streptothricin were combined, their effect on tubercle bacilli was additive rather than synergistic. The principal effects of streptomycin on the cell structure of tubercle bacilli were loss of acid-fastness, increase in granulation and, in highly bacteriostatic concentrations, shortening of the rods.

Journal of Clin. Endocrinology, Springfield, Ill.

7:611-664 (Sept.) 1947

Factor of Previous Treatment in Experimental Menstruation. Doris H. Phelps.—p. 611.
*Clinical Significance of Hyperostosis Frontalis Interna. N. G. Schneeberg, G. Woolhandler and R. Levine.—p. 624.
Acromegaly Associated with Amyotrophic Lateral Sclerosis and Acromegaly of Amyotrophic Type: Report of 3 Cases. E. P. McCullagh and J. S. Hewlett.—p. 636.
Conjunctival and Corneal Lesions in Hypercalcemia. F. B. Walsh and J. E. Howard.—p. 644.
Pregnancy Test Using the Male Toad. C. G. Mainini.—p. 653.

Hyperostosis Frontalis Interna.—Schneeberg and his associates say that it has been generally accepted that the thickening of the internal table of the frontal bone is indicative of either endocrine or metabolic pathologic change. They have investigated the question of the existence of a distinct clinical entity accompanying hyperostosis frontalis interna. Six hundred and seventy-five cases from the literature and 25 of their own cases have been analyzed and their clinical features compared to a control series of patients without the disease. The analysis indicates that hyperostosis frontalis interna is a not uncommon incidental thickening of the skull in women that is unrelated to whatever clinical state may accompany it.

Journal of Experimental Medicine, New York

86:193-266 (Sept.) 1947. **Partial Index**

Toxic Action of Preparations Containing Oxygen-Labile Hemolysin of Streptococcus Pyogenes: III. Induction in Mice of Temporary Resistance to Lethal Effect of Toxin. A. W. Bernheimer and G. L. Cantoni.—p. 193.
Enhancing Effect of Concurrent Infection with Pneumotropic Viruses on Pulmonary Tuberculosis in Mice. M. Volkert, Cynthia Pierce, F. L. Horsfall Jr. and R. J. Dubos.—p. 203.
Binding of Fatty Acids by Serum Albumin: Protective Growth Factor in Bacteriological Media. B. D. Davis and R. J. Dubos.—p. 215.
St. Louis Encephalitis: Transmission of Virus to Chickens by Infected Mites Dermanyssus Gallinae and Resulting Viremia as Source of Virus for Infection of Mites. Margaret G. Smith, R. J. Blattner and Florence M. Heys.—p. 229.
Studies on Mechanism of Recovery in Pneumonia Due to Friedländer's Bacillus. L. Sale Jr. and W. B. Wood Jr.—p. 239.

Journal of Gerontology, Springfield, Ill.

2:205-270 (July) 1947

*Fat Deposition in Vitro Caused by Lipfanogens and Opposed by Antilipfanogen. H. S. Simms, Mary S. Parshley and Ruth B. Pitt.—p. 205.
Biologic Versus Chronologic Age. H. Benjamin.—p. 217.
A Transmissible, Cumulative and Reversible Factor in Aging. A. I. Lansing.—p. 228.
Bone Growth in Normal and Retarded Growth Rats. LeR. L. Barnes, Gladys Sperling and C. M. McCay.—p. 240.
Calcium Requirements of Old and Young Hamsters and Rats. G. G. Kane and C. M. McCay.—p. 244.

Fat Deposition in Vitro.—Simms and his co-workers show that blood serum contains substances which are taken up by adult animal cells in tissue culture and are converted into fat granules. These were formerly referred to as the B factor; the authors call them lipfanogens. A number of soaps of long chain fatty acids, as well as monoglyceryl oleate act as lipfanogens. The activity of lipfanogens is not destroyed by heating at 100 C. Lipfanogenic activity is tested by placing test solutions on nongranular cultures of adult chicken aorta fibroblasts. Lipfanogens are thought to play a role in the deposition of fat in atherosclerosis. An agent which opposes the formation of fat granules in the presence of lipfanogens is also found in blood serum. This agent is called "antilipfanogen" (and was formerly referred to as anti-B factor). Antilipfanogen is inactivated by heating at 100 C. This difference in stability makes it possible to determine the relative amounts of these agents in a sample of serum. Attempts are being made to purify antilipfanogen until it is free from lipfanogens. Evidence indicates that antilipfanogen combines with lipfanogens in such a way as to interfere with the formation of fat granules. It is not yet known whether this action prevents the entrance of lipfanogens into the cell or whether it aids the metabolism of lipfanogens.

Journal of Immunology, Baltimore

57:1-100 (Sept.) 1947. **Partial Index**

Neutralization of Mouse-Adapted Lansing Strain of Poliomyelitis Virus by Serum of Patients and Contacts. G. C. Brown and T. Francis Jr.—p. 1.
Specific Antigen Recovered from Tissue Infected with M. Paratuberculosis (Johne's Bacillus): IV. Studies on a Second, Inhibiting Substance in Infected Mucosa. B. Sigurdsson.—p. 11.
Studies on Chemotherapy of Pox Viruses. I. Effect of Commercial Penicillin and Other Selected Substances on Canary Pox Virus. V. Groupe and G. Rake.—p. 17.
Immunochemical Studies on Tobacco Mosaic Virus. S. Malkiel and W. M. Stanley.—p. 31.
Complement Fixation Reactions of Heat-Labile and Heat-Stable Antigens of Clostridium Tetani. J. B. Gunnison.—p. 67.
Serology of Coli Group. F. Kauffmann.—p. 71.

Journal of Nat. Cancer Inst., Washington, D. C.

8:1-44 (Aug.) 1947. **Partial Index**

Neoplastic Transformation of Granulosa Cells in Grafts of Normal Ovaries into Spleens of Gonadectomized Mice. J. Furth and H. Sobel.—p. 7.
Photometric Estimation of N-Acetyl-2-Aminofluorene. B. B. Westfall and H. P. Morris.—p. 17.
Enzymatic Hydrolysis of α-α Diglycylaminopropionic Acid Hydrochloride. J. M. Gonçalves and J. P. Greenstein.—p. 25.
Relative Amount of Ammonia Evolved from Digests of Isomeric Peptides with Aqueous Tissue Extracts. J. M. Gonçalves, V. E. Price and J. P. Greenstein.—p. 31.
Spectral and Chemical Properties of Pyruvoylglycine. M. Errera and J. P. Greenstein.—p. 39.

Journal of Nervous and Mental Disease, New York

106:107-220 (Aug.) 1947

Distribution of Carbonic Anhydrase in Pallium in 19 Cases of Paretic Neurosyphilis. Winifred Ashby and G. D. Weickhardt.—p. 107.
Relationship of Vegetative Nervous System to Uremia. L. Hess.—p. 124.
Dynamic View of Amyotrophic Lateral Sclerosis. H. Veit.—p. 129.
Narcosynthesis Immediately Following Insulin Shock: Preliminary Report. S. Levy and H. A. Perry.—p. 137.
Further Experiences with Electronarcosis. Esther B. Tietz.—p. 150.
Follow-Up Study on 80 Cases of Convulsive Disorder. R. F. Perkins and M. W. Laufer.—p. 159.
Morale on Neuropsychiatric Service in Army General Hospital: Its Relationship to Therapy of Psychoses. J. J. Michaels.—p. 165.
Hypnotherapy. Edith Klemperer.—p. 176.
Military Offense Induced by Hypnosis. J. M. Schneck.—p. 186.
Indirect Technic to Induce Hypnosis. M. H. Adler and L. Secunda.—p. 190.

Michigan State Medical Society Journal, Lansing

46:1001-1112 (Sept.) 1947

Of Juvenile Court Justice and Judges. P. W. Alexander.—p. 1049.
Improved Legal Procedure for the Care of Mentally Ill. A. E. Moore.—p. 1056.
*Use of Thiouracil in Treatment of Angina Pectoris: Report of 16 Cases. R. L. Fisher and M. Zukerman.—p. 1059.
Inversion of Uterus. W. C. Reid and J. E. Summers.—p. 1066.
A New Sulfonamide—Sulfamylon. Its Topical Use in Upper Respiratory Disease. S. E. Barnett, S. B. Goss, L. Fox and H. H. Cohen.—p. 1069.
Foreign Bodies of Cornea. W. R. Hubbard.—p. 1074.

Use of Thiouracil in Angina Pectoris.—Fisher and Zukerman used thiouracil in 16 cases of angina pectoris, obtaining good results in 14. The dosage of thiouracil is 3 grains (0.2 Gm.) after meals until the patient has made an adequate clinical response, after which it is reduced to 1½ grains (0.1 Gm.) after meals and at bedtime. It is desirable to give the smallest dose that will keep the patient's symptoms at a minimal

level. To detect early toxic manifestations the patient should be seen at three to four day intervals during the first three weeks of therapy and at weekly intervals for approximately one month afterward. If severe anemia and leukopenia develop, thiouracil therapy should be continued with small doses; if the condition does not correct itself, therapy should be discontinued. When myxedema develops, the drug should be reduced until the condition is corrected. While administration of thyroid extract tends to correct myxedematous states, the beneficial effect of thiouracil is correspondingly decreased. In this study the average number of days from the time of initial treatment until there was a subjective improvement was 13.3 days. One patient did not respond until a lapse of thirty days. Adjunctive therapy should consist of glyceryl trinitrate 1/100 grain (0.6 mg.) when necessary, in those patients who are not completely relieved of their attacks.

Minnesota Medicine, St. Paul

30:914-1016 (Sept.) 1947

Prolonged Labor with Special Reference to Postpartum Hemorrhage. A. M. Watson.—p. 945.
Management of Obstetric Emergencies. F. L. Schade.—p. 949.
General Problem of Anesthesia in Obstetrics. E. B. Tuohy.—p. 953.
Medical Therapy in Ulcerative Colitis. P. G. Boman.—p. 956.
Medical Treatment of Peptic Ulcer. J. A. Wilson.—p. 960.
Vagotomy in Peptic Ulcer. W. Walter, H. A. Neibling, W. F. Bradley and others.—p. 965.
Lumbar Retroperitoneal Ganglioneuroma. L. M. Larson.—p. 969.
Minnesota Serological Evaluation Study. H. E. Michelson.—p. 972.
Roentgen Therapy of Bronchiogenic Carcinoma. E. T. Leddy.—p. 975.

New England Journal of Medicine, Boston

237:419-464 (Sept. 18) 1947

*Streptomycin Therapy for Certain Infections of Intestinal Origin. E. J. Pulaski and W. H. Amspacher.—p. 419.
*Gold Therapy in Rheumatoid Arthritis. J. S. Browning, B. M. Rice, W. V. Lee and L. M. Baker.—p. 428.
Treatment of Acute Uremia by Peritoneal Lavage. R. W. Buckley and R. A. Scholten.—p. 431.
Hematology. W. Dameshek.—p. 434.
Acute and Chronic Pyelonephritis.—p. 454.
Periarteritis Nodosa.—p. 457.

237:465-500 (Sept. 25) 1947

Presentation of the Henry Jacob Bigelow Gold Medal: Introductory Remarks and Presentation of the Medal. J. V. Meigs.—p. 465.
Education of the Surgeon. E. C. Cutler.—p. 466.
Weil's Disease: Report of 23 Cases. E. C. Heringman and J. H. Phillips.—p. 471.
Carcinoma of Breast: End-Results: Massachusetts General Hospital 1933-1935. G. W. Taylor and R. H. Wallace.—p. 475.
Plasma-Volume Determinations in Rheumatic Subjects During Oral Salicylate Therapy: Report of Case with Severe Hemorrhage. C. L. York and W. J. H. Fisher Jr.—p. 477.
Hematology. II. W. Dameshek.—p. 480.
Acute and Chronic Tuberculous Pericarditis.—p. 486.
Leiomyoma of Descending Colon.—p. 489.

Streptomycin Therapy for Infections of Intestinal Origin.—This report by Pulaski and Amspacher brings up to date the record on certain streptomycin-treated cases of intestinal origin observed in the Army streptomycin program. The results of streptomycin therapy in acute and chronic brucellosis were poor, although in 2 acute cases in which streptomycin and sulfonamide therapy were combined apparent cures were achieved. The results in acute typhoid were disappointing, and in 2 of 3 typhoid carriers treatment was a failure. A patient with dysenteric paratyphoid recovered promptly. The results of treatment in enteritides due to Salmonella and Shigella organisms were generally favorable, but in nonspecific ulcerative colitis results were generally equivocal. In infantile diarrhea, although some deaths occurred, results were usually good and sometimes dramatic. In infections caused by organisms susceptible to streptomycin the results of treatment are likely to be good if the drug can be brought into contact with all foci of infection. If the organisms are not susceptible to streptomycin, treatment is without value.

Gold Therapy in Rheumatoid Arthritis.—Browning and associates followed 47 patients with active rheumatoid arthritis for periods of eighteen months to six years. All received gold therapy in amounts ranging from less than 500 to more than 3,000 mg. of a salt containing 50 per cent gold. Those who continued in an improved state after treatment constituted less than 25 per cent of the total, whereas over 60 per cent showed no appreciable change and 15 per cent became worse. Nearly two thirds of the patients had toxic reactions to gold. Although most of these side effects were of little consequence, there were 2 cases of exfoliative dermatitis, with 1 death.

Philippine Medical Association Journal, Manila

23:191-226 (May) 1947

Early Ambulation in Major Gynecologic Cases. C. P. Manahan and Jovita Coronado.—p. 199.
Psychology of the Sick Person. J. G. Cruz.—p. 203.
Observations on Use of Sulfamerazine in 200 Children at North General Hospital. F. del Mundo, R. Carretero and B. Bautista.—p. 207.

23:227-276 (June) 1947

Observations on American Health Organizations and Hospital Services. F. Arenas.—p. 227.
Experiences with Use of Deproteinated Pancreatic Extract ("Depropanex") in Cardiovascular Conditions. M. M. Alimurung.—p. 239.
Early Rising in Surgery. A. T. Zavalla, P. A. Morales and R. Madlangsacay.—p. 245.
Reactions and Conmplications of Blood Bank Transfusions. J. Z. Sta. Cruz and M. S. Oca.—p. 251.
Toxicity of Oil of Chenopodium when Administered Together with Castor Oil. R. Guevara.—p. 259.

Proc. of Staff Meet. of Mayo Clinic, Rochester, Minn.

22:401-432 (Sept. 17) 1947

Syndrome of Cerebral Abscess and Congenital Cardiac Disease. E. M. Gates, H. M. Rogers and J. E. Edwards.—p. 401.
Systemic Right Ventricle in Patent Ductus Arteriosus: Report of Case with Obstructive Pulmonary Vascular Lesions. J. M. Douglas, H. B. Burchel, J. E. Edwards and others.—p. 413.
*Obstruction of Vitallium Tubes by Biliary Sediment: Report of 9 Cases and Review of Literature. H. A. Neibling and W. Walters.—p. 424.

Obstruction of Vitallium Tubes by Biliary Sediment.—Neibling and Walters point out that whereas many reports have stressed the facility with which vitallium tubes may be used in reconstructive surgery of the common bile duct, too few do more than mention the ever present danger that such a tube may become obstructed by biliary sediment. At the Mayo Clinic vitallium tubes have been used in 74 cases. The author reports 9 instances of obstruction of the vitallium tubes by biliary sediments. The duct at time of removal of the vitallium tube was considered satisfactory in itself in only 1 case. In 6 instances some form of splint was used, and a hepaticojejunostomy was performed in 1 instance. Since any or all vitallium tubes may eventually become obstructed, it is advocated that a tube be used as a temporary splint which will pass from the duct spontaneously or after the removal of the silk suture which holds it.

Psychiatric Quarterly, Utica, N. Y.

21:351-529 (July) 1947

Psychosexual Headache. R. Seidenberg.—p. 351.
Moral Agenesis: Toward Delimitation of Problem of Psychopathic States. B. Karpman.—p. 361.
Differential Diagnosis Between Spurious Homosexuality and Perversion Homosexuality. E. Bergler.—p. 399.
Depressions and Anxiety States of Middle-Aged Man. M. Prados and B. Ruddick.—p. 410.
Demonstrative Clinical Teamwork in Treatment of Conversion Hysteria. E. E. Mueller and E. M. Kaney.—p. 431.
Treatment of Huntington's Chorea with Belladonna Alkaloids. P. J. Tomlinson.—p. 447.
Vaccination Against Tuberculosis with BCG. K. Birkhaug.—p. 453.
Fairfield Block Substitution Test for Measuring Intellectual Impairment. J. R. Grassi.—p. 474.

Public Health Reports, Washington, D. C.

62:1283-1326 (Sept. 5) 1947

Alcohol as Disinfectant Against Tubercle Bacillus. C. R. Smith.—p. 1285.
Deaths from Respiratory Tuberculosis in Institutions in United States, 1945. R. V. Kasius and E. H. Halpin.—p. 1296.

62:1327-1354 (Sept. 12) 1947

Local Health Department Program in Housing. L. M. Board.—p. 1327.

62:1355-1390 (Sept. 19) 1947

Dental Services Received by Children in a New York Clinic. I. Altman.—p. 1355.

Puerto Rico J. Public Health & Trop. Med., San Juan

22:331-516 (June) 1947

Development of Schistosoma Mansoni in Snail Intermediate Host, Australorbis Glabratus. J. F. Maldonado and Josefina Acosta Matienzo. —p. 331.

DDT and Aedes Aegypti Control in British Guiana. P. F. De Caires. —p. 405.

Cutaneous Arachnoidism or Gangrenous Spot of Chile. A. Macchiavello. —p. 425.

Radiology, Syracuse, N. Y.

49:269-398 (Sept.) 1947

Plutonium Project: Introduction. R. E. Zirkle.—p. 269.

Components of Acute Lethal Action of Slow Neutrons. R. E. Zirkle. —p. 271.

Biologic Studies in Tolerance Range. E. Lorenz, W. E. Heston, A. B. Eschenbrenner and Margaret K. Deringer.—p. 274.

*Hematologic Effect of Ionizing Radiations in Tolerance Range. L. O. Jacobson and E. K. Marks.—p. 286.

Clinical Sequence of Physiologic Effects of Ionizing Radiation in Animals. C. L. Prosser, E. E. Painter, H. Lisco and others.—p. 299.

Effects of Total Surface Beta Irradiation. J. R. Raper.—p. 314.

Metabolism of Fission Products and Heaviest Elements. J. G. Hamilton. —p. 325.

Histological Changes Following Radiation Exposures. W. Bloom.—p. 344.

*Biologic Effects of Pile Radiations. P. S. Henshaw, E. F. Riley and G. E. Stapleton.—p. 349.

Carcinogenic Properties of Radioactive Fission Products and Plutonium. H. Lisco, Miriam P. Finkel and A. M. Brues.—p. 361.

Hematologic Effect of Ionizing Radiations in Tolerance Range.—Jacobson and Marks consider of great importance in connection with the plutonium project the effect of chronic daily exposure of the whole body to ionizing radiations originating outside the body. Studies conducted with experimental animals and human beings indicate that the reduction of lymphocytes in the peripheral blood is the most sensitive indication of acute or subacute exposure to externally originating ionizing radiation or internally deposited radioisotopes. However, in studies conducted on Plutonium Project personnel no hematologic changes occurred which were referable to radiation exposure in the "tolerance range." For this reason clinically applicable tests to determine and evaluate incipient damage to personnel from radiation exposure in the "tolerance range" are urgently needed. Reliance on studies of the hematologic constituents of peripheral blood is dangerous, since no changes can be expected with exposure in this range. The appearance in personnel working in the field of nuclear physics or medicine of hematologic changes which are referable to an acute or chronic exposure to radiations should be interpreted as serious and probably should preclude further exposure of the worker thus affected.

Biologic Effect of Pile Radiations.—Henshaw, Riley and Stapleton say that an extensive biologic program was undertaken as a part of the Manhattan Project when it was realized that hazardous amounts of high energy radiations would frequently be encountered during the production of plutonium and the various radioactive isotopes. Experiments were carried out with mice to determine the late effects of periodic and single exposures of fast neutrons, slow neutrons and gamma rays (penetrating radiations). Similar experiments were carried out with beta rays, the absorption of which was limited almost exclusively to the skin. In general the late effects resulting from exposure to penetrating radiations, irrespective of the method of exposure, consisted of generalized atrophy and neoplasia of hemopoietic organs. Both effects were attended by shortened life span, loss in weight, some increase of tumor incidence in organs other than hemopoietic, a modified blood picture and pathologic and histologic changes, all of which served as criteria of radiation effects. Evidence indicates that the degree of biologic effect varies not only with the dose but also with the density of ionization produced. When sublethal doses of beta rays are applied to rats and mice abnormalities are produced in the skin, especially of the malignant types. Following doses of 4,000 to 5,000 rep (roentgen equivalent physical), animals that ordinarily have no skin lesions all showed carcinoma of the skin, including nearly every type, some animals having fifty to one hundred loci. It is significant that tumors of hemopoietic tissue were obtained with penetrating radiation and cutaneous tumors with surface-absorbed radiations.

Yale Journal of Biology and Medicine, New Haven

19:909-1038 (July) 1947

The Teeth of Colonial Americans: Reported by Three Contemporary Observers. B. G. Anderson.—p. 909.

Boston's First Medical Society. S. B. Weld.—p. 923.

Nucleoproteins and Gene Structure. K. G. Stern.—p. 937.

*Full Term Intra-Abdominal Pregnancy with Living Mother and Child. Hu Sin Teh.—p. 951.

Crowing Hen: Observations on Spontaneous Sex Reversal in Birds. T. R. Forbes.—p. 954.

*Experiences in Treatment of Neoplastic Disease with Nitrogen Mustard. M. Taffel.—p. 971.

Anesthetic Management of Cardiac Patient. V. J. Collins.—p. 979.

Fibrillae of Cells: Need for Further Investigation. J. M. Glassman. —p. 991.

Effects of Pyridoxine and Folic Acid on Thiouracil-Induced Granulopenia in Monkeys. H. Aranow Jr. and E. D. Goldsmith.—p. 995.

Isolation of Pure Amino Acids. J. S. Fruton.—p. 999.

Simple Medium for Growth of Tubercle Bacilli. D. L. Dunphy and Mildred D. Fousek.—p. 1013.

Therapy of Experimental Influenza in Mice with Antibiotic Lactones and Related Compounds. B. A. Rubin and N. J. Giarman.—p. 1017.

Full Term Intra-Abdominal Pregnancy.—Hu Sin Teh reports the case of a Chinse woman, aged 30, who had had her last menstrual period Dec. 26, 1945. She began to have symptoms of morning sickness thirty-seven days later. On admission to the hospital on June 22, 1946 she complained of having had some irregular pinkish vaginal bleeding for five months and paroxysmal abdominal pain of five days' duration. There was some edema of both legs. The lower part of the abdomen was moderately enlarged and occupied by a tense, tender, nodular mass, corresponding to the size of a six month fetus. The uterus was felt in the pubic region. The diagnosis of secondary abdominal pregnancy was made but operation was refused. The patient was readmitted on Aug. 25, 1946, complaining of a recurrence of vaginal bleeding and constant dragging pain in the lower part of the abdomen. Laparotomy was performed on Aug. 30, 1946. The uterus was entirely intact, being flattened anteroposteriorly, hypertrophied laterally to the size of a five and one-half month pregnancy, situated on the right side of the lower part of the abdomen. The rest of the abdomen was occupied by the gestation sac. Further exploration showed a living female child, presenting by the breech, with the face lying directly on the left kidney of the mother. It was extracted without difficulty. A portion of the membranes was firmly adherent to the posterior aspect of the uterus extending upward to the sigmoid and rectum, from which separation was impossible. This was left untouched while the rest of the membranous sac was removed completely. Both mother and child were discharged in one month.

Nitrogen Mustard in Neoplastic Disease.—Taffel reports observations on 16 patients with neoplastic disease who were treated with a nitrogen mustard derivative. Eleven of the patients had had previous roentgen therapy for their disease; 4 had had no prior treatment, and in 1 the primary tumor (testis) had been excised. The drug produced no cures. Hodgkin's disease appeared to be most susceptible to the action of the drug. There was an early, often a great, but always a relatively short-lived reduction in the size of the lesions. One patient with mycosis fungoides benefited from the drug for about five months; 1 patient with stem-cell lymphoma is still symptomatically improved four months after treatment; and 1 patient with Ewing's tumor of the pelvic bone was improved for less than two months. The drug has a toxic, depressing effect on all the elements of the blood and not infrequently brings about an alarming degree of agranulocytic leukopenia and thrombocytopenia. The drug has a place in the treatment of lymphomatous cancer and especially Hodgkin's disease. Its beneficial effects are similar to those resulting from roentgen therapy. It is especially useful in patients who have become resistant to radiotherapy. At the author's clinic, radiotherapy is still the treatment of choice for the lymphomas, provided the disease is localized. Nitrogen mustard therapy is reserved for patients with diffuse systemic involvement and for those who have become resistant to the roentgen ray.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted. Single case reports and trials of new drugs are usually omitted.

British Journal of Ophthalmology, London

31:517-580 (Sept.) 1947

*Distribution of Penicillin in Eye After Subconjunctival Injection. A. Sorsby and J. Ungar.—p. 517.
*Local Penicillin Therapy of Hypopyon Formation: Special Reference to Use of Subconjunctival Injection. A. Sorsby and H. Reed.—p. 528.
Lamina Cribrosa and Its Nature. M. Wilczek.—p. 551.
Contact Lenses. I. Man.—p. 565.
Post-Operative Security in Cataract Cases. T. G. Wynne Parry.—p. 569.
Power or "Powers" of a Lens. J. I. Pascal.—p. 570.
Restoration of Chamber After Intra-Capsular Extraction. A. Kettesy.—p. 572.

Subconjunctival Injection of Penicillin.—Sorsby and Ungar demonstrated that substantial concentrations of penicillin, many times the usual therapeutic level, can be obtained in the ocular tissues by the subconjunctival injection of crystalline penicillin in a dose of 50,000 units. Adequate levels persist for six hours. The concentrations are distinctly higher if epinephrine 1:1,000 is used as the solvent for the penicillin.

Subconjunctival Injection of Penicillin in Hypopyon.—Sorsby and Reed review therapeutic results obtained in 66 patients with hypopyon. This group included cases of infected corneal ulcer, some of which were treated by subconjunctival injections of penicillin. Other methods of local penicillin therapy were employed in other patients. In some patients oral sulfonamide treatment was used, and in others general sulfonamide treatment was combined with local application of penicillin. Infected corneal ulcers responded well to treatment. Hypopyon seen in herpetic or neuropathic keratitis gave no response. Hypopyon iritis appeared to require no treatment other than atropine. Subconjunctival injections of penicillin proved to be the method of choice for infected corneal ulcers with hypopyon. This treatment consists of twelve to sixteen subconjunctival injections each of 60,000 units of penicillin (dissolved in 0.25 cc. of 2 per cent procaine and 0.25 cc. of 1:1,000 epinephrine) at intervals of six hours, followed by the four hourly instillation of penicillin ointment in a concentration of 100,000 units per gram.

Edinburgh Medical Journal

54:333-400 (July) 1947

Perfusion Experiment in Study of Tissue Injury. C. H. Kellaway.—p. 333.
Some Problems in Assessing Part of Trauma in Nervous Disease. J. H. Slater.—p. 349.
Urinary Incontinence Following Childbirth, Including Vesico-Vaginal Fistulae. J. C. Moir.—p. 368.
Evolution, Function and Scope of Medical Society. E. Bramwell.—p. 382.

Irish Journal of Medical Science, Dublin

261:545-592 (Sept.) 1947

Pulmonary Embolism. M. H. O'Connor.—p. 545.
Cysto-Pyelitis. T. J. D. Lane.—p. 549.
Biochemical Factors in Etiology of Urinary Calculi. W. J. E. Jessop.—p. 566.
Laboratory Diagnosis of Virus Infections: Summary of Current Methods. P. N. Meenan.—p. 566.
*Problems Arising from Prefrontal Leucotomy. J. P. Malone.—p. 573.
Mass Radiography Service in Dublin. M. G. Magan.—p. 580.

Problems Arising from Prefrontal Leukotomy.—Malone's analysis is based on a survey of the literature and a comparison with the leukotomy case material (over 240 cases) of the hospital with which he is connected. He deplores the vague qualitative groupings in the assessment of results. Some might be content to regard a transfer from a very refractory to a less refractory ward as an institutional recovery, a result that has been less kindly referred to as changing a complaining and troublesome patient into a contented drone, while more exact workers would prefer to reserve the term for patients who can be granted parole and usefully employed under limited supervision. With regard to neuropathologic problems, reports are cited on examinations of brains of patients who died after leukotomy and the paths are listed which most observers agree are interrupted by leukotomy. Some observers believe that the operation is followed by intellectual rechannelling. Others favor an emotional rechannelling. The sociologic and ethical aspects of leukotomy raise the question whether in the removal of morbid symptoms by leukotomy a sense of moral and ethical values has not also been lost. One should consider the attitude of the community toward a person who is moving on a lowered emotional and personality level, with a diminished concern as to consequence. Are the relatives to be informed that an element of supervision is necessary if misdemeanors are to be avoided? Can the surgeon hand the responsibility back to the community, secure in the knowledge that they can and are willing to accept it? Should the surgeon have to make the decision for operation, balancing relief of symptoms against lowered morality?

Journal of Tropical Medicine and Hygiene, London

50:169-188 (Sept.) 1947

The Cyst-Passer. L. E. Napier.—p. 169.
Amoebic Abscess of Spleen. P. Manson-Bahr.—p. 174.
Amoebiasis, Diagnostic and Therapeutic Considerations. W. J. Alkan.—p. 175.
*Altered Tuberculin Sensitivity in Chronic Malaria. J. G. Makari.—p. 183.

Altered Tuberculin Sensitivity in Chronic Malaria.—Makari studied the reactivity of patients with chronic malaria to old tuberculin. He found that the incidence of positive reactors in 58 patients with chronic malaria (group 1) was 41.4 per cent as compared with 23.3 per cent in 60 nonmalarial controls (group 2). The incidence of positive reactors in group 1 was found to be greater in the higher age groups. The incidence of positive reactors in group 1 was related to the activity of malarial infection as revealed by the cephalin test and to the sensitivity of tissues in response to the intradermal injection of malarial antigen. The results of this investigation indicate that an altered sensitivity to tuberculin is encountered in patients with chronic malaria. It is suggested that intradermal testing with malarial antigen should accompany tuberculin testing in regions where malaria is prevalent and that positive reactors to the malarial antigen be excluded where accurate tuberculin surveys are anticipated.

Practitioner, London

159:159-238 (Sept.) 1947. **Partial Index**

Problem of Bright's Disease. R. Platt.—p. 159.
Infections of Kidneys. H. Evans.—p. 166.
Renal Calculi. A. Jacobs.—p. 169.
Renal Tuberculosis. N. S. Plummer.—p. 176.
Significance of Hematuria. R. W. Reid.—p. 183.
Genito-Urinary Disorders in Infancy and Childhood: Special Reference to Enuresis. D. F. E. Nash.—p. 188.
Modern Views on Ventilation, Warming and Cooling. G. P. Crowden and T. C. Angus.—p. 210.
Pain and Its Problems: IX—Urological Pain. W. E. Underwood.—p. 218.

Quarterly Journal of Medicine, Oxford

16:99-210 (Sept.) 1947

Fat Absorption in Tropical Sprue. D. A. K. Black, J. P. Bound and L. P. R. Fourman.—p. 99.
Heredity in Hypertension. R. Platt.—p. 111.
Significance of van den Bergh Reaction. C. H. Gray.—p. 135.
Hypertension and Unilateral Kidney Disease. G. J. Langley and R. Platt.—p. 143.
Actiology, Diagnosis and Treatment of Prolapsed Intervertebral Disk, with a Review of 300 Cases of Sciatica. D. Kendall.—p. 157.
*Fainting and Flying: Analysis of 500 Cases of Impairment of Consciousness in Pilots and Aircrew. A. F. Rook.—p. 181.

Fainting and Flying.—Rook says that 500 cases of impairment of consciousness among pilots and aircrew were classified into three groups, which, however, merged into one another so that it was difficult to name the predominant factor in a given patient. The neurogenic group comprised just under a quarter of the total, about half of them cases of epilepsy. Fear as a causative factor of epileptic attacks seemed to be of more importance than has commonly been supposed. The cardiovascular group comprised over a quarter of the total. Cardiovascular inefficiency was the main element, either acting alone or in association with other factors. In hypotension caution is necessary. Slightly less than half of the cases of impairment of conscious-

ness among aviators were classified as emotional in origin. An electroencephalogram was done on 299 of the patients. In the neurogenic group nearly 50 per cent of the electroencephalograms pointed to an epileptic basis for the attack; in the other groups 15 per cent were positive. It is important to obtain a complete history for all candidates for flying duties.

Acta Medica Scandinavica, Stockholm

128:317-412 (Aug. 1) 1947. **Partial Index**

*Artificial Kidney: I. Apparatus for Dialysis of Blood in Vivo. N. Alwall. —p. 317.
Oxygen Consumption of Liver, Kidneys and Pancreas at Different Times During the Twenty-Four Hours. H. J. Holmgren and B. Naumann. —p. 326.
Significance of Motility Disturbances of Stomach as Cause of Gastric Distress. P. Brummer.—p. 339.
Pathologic Gastric Motility, Criterion of Roentgen Diagnosis in Cases of Gastric Distress. C. Wegelius.—p. 349.
Studies on Human Leukemias: Chronic Hemocytoblastic Myelosis. N. Quattrin.—p. 357.
Normal Serum Esterase and Pancreatic Lipase in Diseases Outside Liver, Biliary Ducts and Pancreas. H. O. Lagerlöf.—p. 380.

Artificial Kidney: Dialysis of Blood in Vivo.—Alwall describes his dialysis apparatus, which has been in use since 1945. The "cellophane" tube through which the blood flows is wound around a cylinder of wire netting, which stands immersed within a glass container filled with suitable saline solution that is kept constantly moving by means of a motor-driven propeller. The apparatus is relatively easy to handle, is small and has great dialysis capacity. The glass container permits continuous survey. The apparatus is without movable parts (except for the motor-driven propeller which stirs the saline solution). Accordingly there is no necessity for the blood to pass rotating couplings or a pump. The arterial pressure drives the blood in a thin layer through the apparatus and back to the vein. The risk of coagulation is diminished. The apparatus offers the essentially new but highly important possibility of maintaining liquid balance between the blood in the "cellophane" tube and the surrounding saline solution. Thus it is not necessary to use colloid. The author says that when he planned the construction of an "artificial kidney" the work published by Kolff and Berk in 1944 was not known to him. His apparatus, details of which are illustrated, differs in some essentials from that of those investigators. Less heparin is required with his apparatus, and he obtains nearly the same dialysis as does Kolff with a tube which is only about one fourth as long.

An. Cáted. de Pat. y Clin. Tuberc., Buenos Aires

8:1-164 (June) 1946. **Partial Index**

Clinicoradiologic Discrepancies in Pulmonary Pathology. R. F. Vaccarezza, A. Lanari and A. Soubrié.—p. 5.
*Peripheral Tetanus. A. Lanari and C. Devoto.—p. 42.

Peripheral Tetanus.—The effect of an adequate dose of tetanus toxin injected in the gastrocnemius to determine local tetanus was studied by Lanari and Soubrié in cats. The experiments were carried out in neuromuscular preparations in the advanced state of tetanic rigidity. The rigidity does not disappear when the nerve is sectioned, and does not appear when the nerve is sectioned at the same time as the injection of toxin. Indirect stimulation of muscle causes a lower degree of contraction and greater slowness in reaching the highest point in the isolated contraction. The tetanic synapsis when stimulated with current of different frequencies is "advanced" with respect to the normal. The same can be said of the contraction determined by direct muscle stimulation of a curarized tetanic muscle. In response to acetylcholine behavior of the tetanic muscle is similar to that of degenerated muscle, the inhibitory action being the same as in normal muscle. The degeneration due to sectioning of the motor nerve of a tetanic muscle increases the sensitivity to acetylcholine above that in normal muscle. Neostigmine exercises more pronounced inhibitory action on the tetanic muscle than on the normal muscle. The action of curare is to make the tetanic muscle more sensitive than the normal muscle and more resistant at a later stage. The probable interpretation of the behavior of the tetanic muscle is that in advanced local tetanus a synaptic modification is present, possibly with diminished destruction of acetylcholine, and there is an alteration of the motor end plate or the muscular fiber itself, which determines the rigidity of the tetanic muscle.

Archivos de Pediatría del Uruguay, Montevideo

18:285-332 (June) 1947. **Partial Index**

*Etiology of Typhoid Osteitis in Children Verified by Myelocultures. M. A. Jaureguy and G. Simon.—p. 298.

Etiology of Typhoid Osteitis.—Jaureguy and Simon studied bone marrow cultures obtained by sternal puncture in children in the course of typhoid and at a later date. Eberthella typhosa persisted in the bone marrow fifty days or more after the disappearance of fever and sometimes with recurrence of the disease. The typhoid bacillus in the bone marrow is the cause of bone affections after the typhoid. As with the diphtheria bacillus, the patients become carriers of typhoid. The disease does not end with convalescence. Persistence of the causal agent in the bone marrow may cause bone disease months or years after the occurrence of the disease.

Chinese Medical Journal, Shanghai

65:129-198 (May-June) 1947

Investigation on Schistosomiasis. O. K. Khaw.—p. 129.
Differential Medium for Isolation of Vibrio Cholerae. C. H. Yen. —p. 133.
Simple Colored Slide Flocculation Test for Diagnosis of Syphilis. H. T. Hsiang.—p. 135.
New Modification of Martin's Broth. Y. W. Wong.—p. 145.
*Studies on Vegetable Media for Growth of Pathogenic Organisms: I. Pea Juice as Basic Ingredient in Cultivation of Enteric Group Bacteria. C. J. Chen.—p. 151.
Action of Penicillin on Trypanosoma Evansi. C. H. Liu.—p. 159.
Preparation of Simple and Dried Smallpox Vaccine in Gum Acacia; Preliminary Report. H. Wei.—p. 163.
Medium for Maintenance of Toxigenicity of Corynebacterium Diphtheriae. C. C. Young.—p. 167.
Experimental Infection of Silkworm Pupa with Typhus Rickettsia. H. Wei and W. P. Wei.—p. 171.

Vegetable Mediums for Growth of Pathogenic Organisms.—Chen-Jen Chen substituted pea juice for the meat infusion generally used for the culture of pathogenic organisms. Green peas, including both the pod and the seeds, were ground in an electric grinder. The ground material was filtered through several layers of gauze, and as much as possible of the juice squeezed out. The juice was then diluted to 1:10 with water, boiled and filtered through paper. The filtrate was clear and slightly yellowish green, but turned to brownish yellow after autoclaving. This was used as the basic ingredient for making either the solid or liquid medium in the same way in which meat infusion was used, except for the addition of disodium phosphate. The growth of several pathogenic intestinal microorganisms, Vibrio cholerae in particular, was invariably better in this medium than in meat infusions, when estimated with the Klett-Summerson photoelectric colorimeter. Even after twenty passages, the agglutinability of the organisms grown in the pea juice medium remained unchanged, while their antigenicity in provoking agglutinating antibodies in rabbits did not differ from that of the standard vaccine.

Nederlandsch Tijdschrift v. Geneeskunde, Amsterdam

91:2245-2324 (Aug. 16) 1947. **Partial Index**

*Besnier-Boeck's Disease or Tuberculosis. F. M. J. Struyvenberg.—p. 2251.
Treatment of Acute Rheumatic Sciatica by Stretching the Nerve Under Anesthesia. C. A. Cammaert.—p. 2264.
Poisoning by Ethylene Glycol Resulting from Drinking Antifreezing Fluid. J. A. G. ten Berg.—p. 2266.
*Acute Pulmonary Edema After Labor in Healthy Women. G. A. Lindeboom.—p. 2277.

Besnier-Boeck's Disease or Tuberculosis.—Struyvenberg presents histories of 4 members of one family in whom symptoms of tuberculosis and Besnier-Boeck disease (generalized sarcoidosis) occurred in such varied combinations that they appeared to be caused by the same agent, although this has not been proved.

Acute Pulmonary Edema Following Delivery in Healthy Women.—Lindeboom relates the histories of 2 primiparas in whom there suddenly developed acute pulmonary edema following a prolonged labor. Delivery was terminated

by forceps extraction under anesthesia. The threatening symptoms of pulmonary edema responded to the administration of morphine and strophanthin. These women had no cardiac or renal disturbances either before or after the attack of acute pulmonary edema.

Nordisk Medicin, Gothenburg

35:1573-1610 (July 25) 1947. **Partial Index**

Curare as Aid in Treatment of Acute Poliomyelitis. A. Berg.—p. 1573.
Migraine and Paroxysmal Tachycardia. G. Myhrman.—p. 1577.

Hospitalstidende

Effect of Digitaloids on Coagulation Time of Blood: I. Experiments in Vitro. O. Secher.—p. 1580.

Hygiea

*After-Examination of 98 Cases of Thromboembolism Treated with Dicumarol with Special Reference to Post-thrombotic Sequels. E. Velander.—p. 1583.
Familial Form of Paroxysmal Myoglobinuria. R. Hed.—p. 1586.

Thromboembolism Treated with "Dicumarol."—According to Velander, post-thrombotic sequels are not to be feared in most cases of thrombosis of the leg treated with "dicumarol." Of the 42 patients with thrombosis of the leg, 32 were without symptoms and in 10 the symptoms were mild. One case of ulcer of the leg occurred, and the process extended to the thigh in 2 cases. The patients were out of bed in an average of 7.2 days. In the 20 cases in which the femoral vein was invaded by the thrombus, only 5 patients were free from symptoms and 15 had considerable discomfort. Ulcer of the leg occurred in 3 cases. The thrombotic process did not spread to the other leg. Confinement to bed did not exceed 10.3 days, and swelling and pain disappeared quickly. "Dicumarol" is a valuable aid in the prevention of pulmonary embolism. When the drug was used in cases with pulmonary infarct or embolism as the sole symptom, the post-thrombotic symptoms were milder than after conservative treatment and occurred in only a small percentage of the cases.

Presse Médicale, Paris

55:597-608 (Sept. 13) 1947

*Death from Thirst. C. Richet.—p. 527.
Mongolism and Familial Mongolian Stigmata. R. Turpin, G. Bernyer and C. Teissier.—p. 597.
Persistence of Considerable Deficits of Growth in Children of School Age in 1945 and 1946. D. Douady and J. Trémolières.—p. 599.
*Penicillin in Treatment of 11 Cases of Malignant Endocarditis Lenta. J. Terrasse, C. Fougoux and J. Lère.—p. 600.

Death from Thirst.—During the war Richet observed the effect of thirst in railway transports of deportees into Germany who were often en route from sixty to one hundred and twenty hours. During the hot summer months the number of deaths was greater than in winter. The symptoms in some who were in serious condition on arrival at first were not recognized, but realizing the conditions prevailing during the transport, heat stroke or death from dehydration was the diagnosis. The signs were coma, hyperthermia, anuria and general dehydration. Only 1 of 5 survived. Necropsy revealed cerebral edema with venous congestion. In 1 instance blood suffusion was observed in the esophagus; this supposedly is symptomatic of death caused by thirst. Fever and cerebral manifestations dominate in the clinical picture that leads to death from thirst. Either there is excitement leading to delirium or depression that ends in coma. The picture resembles that of heat stroke. The pathogenesis is probably similar, at least during summer; the patients die as the result of hyperthermia.

Penicillin in Malignant Endocarditis Lenta.—Terrasse and his co-workers say that since March 1946 they have had sufficiently large stocks of penicillin to give patients with malignant endocarditis lenta adequate doses of the drug. They report 11 cases, in 4 of which the results were excellent; amelioration was obtained in 2 others, and in 5 cases treatment was a failure. The daily dose of penicillin varied between 500,000 and 2,000,000 units, and the total doses were as high as over 30,000,000 units. There is not always a strict parallelism between the action of penicillin on the pathogenic organism and the clinical results. Struck by the frequency of negative hemocultures, the authors suggest that the persistence of the rheumatic virus may play a part. There is no cause for great optimism as regards the prognosis. The state of the heart determines the final outcome, and it is therefore important to institute effective treatment during an early phase of the disease.

Revista Clinica Española, Madrid

25:243-320 (May 31) 1947. **Partial Index**

*Vitamins in Protein Metabolism: I. Studies of Thiamine in Adult Animals on Undernourished Diets. C. Jiménez Díaz, F. Vivanco, J. M. Palacios, A. Buylla and R. Picatoste.—p. 249.
Id.: II. Thiamine in Young Animals in Growing Period. C. Jiménez Díaz, F. Vivanco, R. Picatoste, A. Buylla and J. M. Palacios.—p. 254.

Role of Vitamins in Protein Metabolism.—The experiments were carried out in two large groups of young and adult white rats. Each group consisted of 2 subgroups. The animals received a diet containing either a normal amount of proteins or a low protein diet. Animals of each subgroup were placed in two different lots according to whether they received vitamin B_1 or not. At the end of the experiment the animals were killed and analyzed. It was found that (1) adult rats which received thiamine stored proteins and maintained a normal amount of proteins in the body whereas those which did not receive thiamine lost proteins even on a normal diet, and (2) body growth and storage of proteins in the body of young rats which received thiamine were more satisfactory than in animals which did not. The results of the experiment show (1) that thiamine is essential for the synthesis of proteins and (2) that the substance plays an important role in protein metabolism and growth.

Schweizerische medizinische Wochenschrift, Basel

77:935-966 (Sept. 6) 1947

*Preoperative Irradiation of Cancer of Breast: Anatomicopathologic Observations. E. Rutishauser and G. Majno.—p. 935.
Surgery of Mammary Cancer. A. M. Fehr.—p. 949.
Treatment of Cancer of Breast from Radiologic Point of View. R. Sarasin.—p. 953.
Study of Metastases of Cancer: VII. Fundamental Considerations on Combined Radiosurgical Treatment of Cancer of Breast. H. E. Walther.—p. 958.

Preoperative Irradiation of Cancer of Breast.—Rutishauser and Majno report on 34 cases of cancer of the breast in women between the ages of 36 and 72 years who submitted to preoperative irradiation with an average dose of 5,000 r in three weeks. Sixteen of these patients still presented more or less extensive cancer with evidence of virulence in small areas of living carcinomatous cells. In 11 patients these carcinomatous cells were present but were surrounded by a fibrous reaction causing atrophy of the cancer. In some cases atrophy of the neoplasm occurred without apparent formation of necrotic foci; there was a peripheral cicatrization, but the center of the neoplasm remained more or less intact. Other lesions revealed foci of necrosis surrounded by an inflammatory reaction. The inflammatory tissue contained more or less degenerated neoplastic cells but also cells with evidence of activity attempting to form a new lobule. Total destruction of the cancer was demonstrated on microscopic examination in only 7 cases. By comparing these results with those reported in the literature, the authors conclude that preoperative irradiation may improve the results of surgery, or at least that the results of surgical intervention after preoperative irradiation will not be worse than those without it. Large doses of roentgen rays exceeding 5,000 r by employing Baclesse's method of cyclic irradiation with small fields are advised. All histologic types of cancer should be irradiated. The biopsy preceding the irradiation is only an aid in differentiation of cancer from other lesions. A four to six weeks' interval between irradiation and surgical intervention is imperative to allow for healing of the radiodermatitis and for retrogression of the cancer. Surgery must always be carried out after the irradiation even in cases of apparently total sterilization demonstrated on biopsy. The tumors which subside most rapidly are bound to recur, and radioresistance may to a certain degree be considered a sign of lesser malignancy. One cannot rely on palpation, since softening may simulate the disappearance of the tumor and cicatrization of a small tumor may be suggestive of its persistence.

Book Notices

A Survey of Antimalarial Drugs, 1941-1945. Edited by Frederick Y. Wiselogle. Contributors: Robert W. Berliner and others. Subsidized by the Office of Scientific Research and Development on Recommendation by the Committee on Medical Research. In two volumes. Volume I; Volume II, Part 1; Volume II, Part 2. Cloth. Price, $30. Pp. 536; 987; 988-1921. J. W. Edwards, 300 John St., Ann Arbor, Michigan, 1946.

These volumes are intended to present in organized form the result of a vast coordinated research program on the development and study of antimalarial drugs. Volume I provides a history of the cooperative program, a résumé of the pharmacologic investigations of antimalarial drugs, chemical series of potential interest, rationale underlying the clinical evaluation of antimalarial drugs, a summary of data on the drugs tested in man and descriptions of the various testing procedures. Volume II (parts I and II) provides tables on which may be found a chemical description of the drug and other pertinent information. The books are of unquestionable value for those engaged in research and teaching, but even more important they provide a permanent testimonial to the value that sometimes may be obtained from planned coordinated research. In wartime information frequently must be restricted but in peacetime, when such participating research workers are permitted scientific freedom, this type of activity has even greater significance. These volumes will be of considerable help to those interested in the field and may also serve as a guide for further collaborative efforts of this type.

Dynamic Aspects of Biochemistry. By Ernest Baldwin, B.A., Ph.D. Cloth. Price, $4; 21s. Pp. 457, with 34 illustrations. The Macmillan Co., 60 Fifth Ave. New York 11; Cambridge University Press, Bentley House, 200 Euston Road, London, N. W. 1, 1947.

The field of biochemistry has long felt the need of a textbook devoted to cellular biochemistry written in a form which is understandable to a student who has not yet had advanced biochemical training. This volume fulfils such a need in covering two broad subjects, enzymes and metabolism. The section on enzymes is readable, with emphasis on the main principles. A classification of enzymes and discussions of the nature of the individual biocatalysts is presented in a logical manner. The section on metabolism deals with nitrogen, fat, and carbohydrate metabolism, the discussion being correlated with enzymology. The author has purposely stressed the chemical aspects without emphasis on the clinical problems. The text is not well documented, and much of it is subject to changes as further advancements in biochemistry are made; nevertheless, it appears to offer a useful source of information for students of biochemistry.

Studies on the Influenza A-Epidemic of January-March 1941 at Groningen (Holland). By J. A. R. van Bruggen, M.D., L. Bijlmer, M.D., W. A. Hoek, J. Mulder, M.D. and L. J. Zielstra. Verhandelingen van het Instituut voor praeventieve geneeskunde, VII. This Study was Published in Holland as a Thesis of J. A. R. van Bruggen. Paper. Price, 5 florins. Pp. 79, with 26 illustrations. H. E. Stenfert Kroese's Uitgevers-Maatschappij N. V. Breestraat 14, Leiden, 1947.

During the early part of 1941 an outbreak of influenza A occurred in Holland. This study (a doctoral thesis of one of the authors) consists mainly of detailed case reports and symptom analyses on persons who were admitted to the hospital during the epidemic, especially those who had complications involving the respiratory tract such as tonsillitis and pneumonia. The laboratory data on these cases are incomplete and the authors do not include any epidemiologic data or information as to morbidity rates either of influenza or its complications. The report is of value mainly as part of a mosaic of information on the worldwide occurrence of various influenza epidemics.

México en la cultura médica. Por el Profesor Dr. Ignacio Chavez, director del Instituto nacional de cardiología, México. Paper. Pp. 187, with illustrations. Edición dell Colegio nacional, Calle de Luis González Obregón Núm. 23, México, D.F., 1947.

One of the most distinguished cardiologists in the Western Hemisphere has written this latest study on the role played by Mexico in medical progress. It is actually not a history but rather a condensed review of outstanding contributions, any pretension at originality being frankly disclaimed. While stressing the wealth of therapeutic material dropped by the Aztecs on the hands of the wondering Spaniards and the pioneer achievements of the former New Spain in the Americas, it is also recognized that scientific advance, as a result of various adverse conditions, has been necessarily slow. Even now quality must unavoidably suffer when 5,000 students are crowded in the largest medical school with accommodations and equipment barely adequate for less than half as many. The book is beautifully printed and illustrated and furnishes on the whole an excellent picture of Mexican medicine both in the past and the present. Some assertions may be challenged. Dominicans, for instance, will take exception to the statement (p. 10) that Mexican hospitals were antedated only by a temporary institution in Panama and that medicine was taught earlier in Mexico than in their own country. The Pan American Sanitary Bureau (not Union) was not created at an inter-American health congress in Mexico in 1892. The Bureau was created, true enough, in Mexico, but nine years later, at a political, not health, conference: the first Pan American Sanitary Conference was not held until 1902 in Washington. The pre-Columbian existence of yellow fever in the New World is far from being an accepted fact, and some would perhaps claim as much for malaria and pulmonary tuberculosis. Reed's experiments on yellow fever were carried out in 1899-1900, not 1901. Plague was reported for the second time in Mexico in 1920, not 1923, and became extinct in 1925. One strange omission is the lack of any reference to conditions outside of Mexico City. An index should also be compulsory in a book of this nature. These, however, are minor blemishes in a serious, earnest effort. Mexican physicians have to their credit many fine accomplishments. They are fortunate in having one of the most conspicuous among them tell the story so ably and enthusiastically.

Diseases of Children: Volume I. First edition edited by Sir A. E. Garrod, K.C.M.G., D.M., F.R.S., Frederick E. Batten, M.D., M.A., F.R.C.P., and Hugh Thursfield, D.M., M.A., F.R.C.P. Fourth edition with contributions by twenty-nine contributors edited by Donald Paterson, M.D., F.R.C.P., Physician, Hospital for Sick Children, Great Ormond Street, London, and Alan Moncrieff, M.D., F.R.C.P., Nuffield Professor of Child Health, University of London. Cloth. Price, $9. Pp. 771, with 154 illustrations. William Wood & Co., Mt. Royal & Guilford Aves., Baltimore 2, 1947.

Fourteen years have elapsed since the third edition of this standard British textbook on pediatrics. Each of the contributors (two of whom are American) is an authority on the subject matter of the chapter he has contributed. The book has been completely revised. Part I consists of general considerations, with chapters on heredity, growth and development, drugs in infancy and childhood, clinical pathology, practical procedures, anesthetics and feeding of infants and children. Part II covers diseases of children, including the newly-born baby, diseases of nutrition, ductless glands, alimentary tract, respiratory system, tuberculosis and allergy.

The book must have been completed soon after the close of the war, as it contains no reference to streptomycin or to the newer surgery of congenital heart diseases. "Benadryl" and "pyribenzamine" are not mentioned in the treatment of allergic diseases. In the chapter on allergy, for seasonal hay fever desensitization injections are begun in January and continued weekly until the beginning of June. "If the patient is immunized for three successive years all sensitivity is frequently lost." Nothing is said about hay fever caused by giant and dwarf ragweeds or about desensitization against this type.

On a whole, this leading and probably most up-to-date British textbook on pediatrics is excellent. The advice given is generally practical and useful. It is exceptionally well written, concise and well printed. The chapters on heredity, the newly-born baby, water and electrolyte control and acid-base regulation, and tuberculosis are outstanding. Most of the illustrations (none in color) are well chosen. Many of the references are unknown to American pediatricians. Except for the chapters written by the American contributors, there is usually a paucity in references to the Continental and American literature.

The book is strongly recommended to American pediatricians who contemplate, in the near future, to visit British pediatric centers. Also, as a companion book to standard American textbooks in pediatrics.

Queries and Minor Notes

THE ANSWERS HERE PUBLISHED HAVE BEEN PREPARED BY COMPETENT AUTHORITIES. THEY DO NOT, HOWEVER, REPRESENT THE OPINIONS OF ANY OFFICIAL BODIES UNLESS SPECIFICALLY STATED IN THE REPLY. ANONYMOUS COMMUNICATIONS AND QUERIES ON POSTAL CARDS WILL NOT BE NOTICED. EVERY LETTER MUST CONTAIN THE WRITER'S NAME AND ADDRESS BUT THESE WILL BE OMITTED ON REQUEST.

VACCINATION AGAINST PERTUSSIS

To the Editor:—Is the age of 3 months too early to immunize infants against pertussis? What dosage of Sauer vaccine is recommended? Is Sauer considered more desirable than other products? Can a reaction from the immunization be equal in severity to a mild case of pertussis, with comparable paroxysms of cough? I had another patient, a boy of 6, who was exposed to pertussis. I gave immediate immunization—Sauer vaccine with an initial dose of 0.5 cc. Three days later he developed typical cough paroxysms (two or three nightly) with characteristic whoop. My impression was that he had been in the "incubation period." The first immunization dose precipitated a full blown but mild course of whooping cough. Do you agree with this deduction? M.D., Florida.

ANSWER.—The average baby is susceptible to whooping cough at birth, and fatality rates are generally highest during the first few months of life. Therefore it seems advisable to attempt immunization not later than at 3 months, as recommended by the committee of the Academy of Pediatrics for Illinois in 1940. In 1945 Sako and his associates reported immunizations as early as 1 month. More recently Tucker has advised immunization at 4 months and states that two thirds are protected. It has been estimated also that about four months is required to develop immunity following the inoculations.

Sauer pertussis vaccine alum precipitated is given in three doses of 1, 2 and 3 cc. each at monthly intervals. Each cubic centimeter contains 15 billion bacilli, so that the total dose is 90 billion bacilli. Sauer uses human blood in culture mediums and believes that by doing so reactions are less likely than if animal blood is employed. Sauer's vaccine can be purchased from a commercial firm.

Severe reactions from the vaccine are not common and cannot be compared with an attack of pertussis.

In the case cited the incubation period for whooping cough was undoubtedly being completed when the vaccine was injected. No claim is made that pertussis vaccine is of value for passive immunization. In fact, it is recommended that pertussis vaccine, prepared for active immunization, should not be administered after exposure to whooping cough has occurred.

"WHEN CANCER STRIKES A CHILD"

To the Editor:—Please comment on the accuracy of the following excerpt from "When Cancer Strikes a Child" in the June issue of *McCall's*, page 87: "Contrary to the general belief, birthmarks, though they may enlarge and be disfiguring, are rarely malignant. When carbon dioxide snow is applied soon after birth, these marks seldom have a chance to spread. In any case the American Cancer Society experts warn that these harmless lesions should never be treated with x-rays or radium. Such treatment, they claim, may cause real cancer to appear as much as fifteen years later." If you consider this prohibition against radiation therapy of hemangiomas correct, please give me references to the literature on the subject. George B. Hood, M.D., Bristol, Pa.

ANSWER.—Radiation therapy of hemangiomas of the skin and subcutaneous tissues is an accepted procedure, and the results of correct irradiation in properly selected cases are highly satisfactory. If the basic principles of irradiation are followed, there is no real danger of cancer of the skin in future years. We are unaware of any scientific work which contraindicates the use of irradiation in properly selected hemangiomas; hence the warning against the use of this method is considered without scientific foundation. The statement that the American Cancer Society experts warn against the correct use of radiation in the treatment of hemangioma is challenged.

UNDULANT FEVER IN CHILDREN

To the Editor:—What do you recommend for treatment of undulant fever in a 6 year old child? Is streptomycin alone or in combination with sulfadiazine effective? Walter G. Thwaite, M.D., Quitman, Ga.

ANSWER.—Children who are effected with undulant fever will respond to the injection of brucellin. Streptomycin alone or in combination with other drugs has not been found effective in the treatment of any form of undulant fever.

GUMS AND OTHER HYGROSCOPIC AGENTS FOR INTESTINAL THERAPEUSIS

To the Editor:—Do gum tragacanth and gum karaya resist digestion and act as lubricants in the intestine? Are there other gums or products that give intestinal bulk and lubrication? M.D., California.

ANSWER.—Tragacanth and karaya gums are hemicelluloses, resist digestion in the alimentary tract and act as mechanical laxatives because of their hygroscopic properties in imparting moisture, bulk and softness to the fecal material. Bassora gum has received favorable mention in recent years. Other vegetable products besides gums that exert similar action on the intestinal tract are agar, plantago seed, Irish moss (Chondrus) and Iceland moss (Cetraria). Plantago seed is the cleaned, dried, ripe seed of Plantago psyllium, known in commerce as Spanish or French psyllium seed, or of Plantago ovata, known in commerce as blond psyllium or Indian plantago seed.

Karaya gum and plantago seed are the chief components of a number of proprietary preparations which enjoy considerable vogue in the treatment of chronic constipation. To some of these preparations have been added dextrose, cascara, phenolphthalein or even mineral oil. When these remedies are prescribed, a few precautions should be observed. The ingestion as well as the inhalation of products of karaya gum may give rise to atopic hypersensitivity, as manifested by nasal, bronchial, cutaneous and gastrointestinal disturbances. The gaseous abdominal distress occurring in about a fourth of the patients following the use of products of karaya gum may be a form of alimentary allergy. With respect to preparations of plantago seed, some authorities regard psyllium seed as being harsher than bran. In inflammatory or irritable conditions of the intestinal tract psyllium seed has been known to provoke spasm and increased constipation or it may give rise to mechanical obstruction in the digestive tract from the level of the esophagus downward. However, by virtue of improved processing methods and the observance of directions accompanying these preparations such harmful results may be avoided.

HERPETIC ULCERS OF THE MOUTH

To the Editor:—I have a patient who has crops of herpetic ulcers of the mouth, tongue and pharynx. In the main she has not been without them since she was about 20 years of age, and she is now 38. The only time that she did not notice them was during the nine months of a pregnancy. They vary in size from 3 mm. to 15 mm. in diameter. Menstruation does not seem to provoke them. She has been on varied types of therapy with no response. I should like your opinion as to etiology and treatment. M.D., Georgia.

ANSWER.—Numerous missing clues make this question difficult to answer. Have the lesions been painful? Are there taste abnormalities? Have there been symptoms in other systems through the years? Have the nose, face or conjunctivas shown herpes or other signs? What laboratory work has been done? Is there an industrial or drug history? What therapy has failed? Is there a family history of allergy?

If the term "herpetic ulcers" is accepted, the field of lesions with such an appearance is somewhat reduced. Herpes simplex may recur but would certainly involve external areas. A drug sensitivity would be obvious, and none produces lesions to fit the description. Vincent's infection, fungous infections, lichen planus, ulceromembranous stomatitis, Moeller's glossitis and lupus lesions can be dismissed because of the duration, location and type of the lesions. Lesions due to food sensitivity are rarely as placid, usually occur earlier and have associated acute swellings of the lips and face. An endocrine basis is suggested by the hiatus during pregnancy but is nullified by the lack of change during the menses and the failure of any endocrine abnormality to produce such lesions.

The onset at 20 years of age suggests several things. Fillings composed of dissimilar metals are reported to produce electrical currents, with occasionally a resultant burning, stomatitis, erosion and ulceration.

Herpes zoster may occur in oral areas from a lesion of the posterior root of the (fifth) cranial nerve. However, the cause is usually obvious or acute; it is almost always unilateral and almost never is recurrent. Even a trophic cause would be unilateral.

"Herpetic" ulcers begin as small vesicles and are usually painful. Chronic aphthae (periadenitis mucous necrotica recurrens) begin as papules, ulcerate and are also painful. The distribution parallels the case in question: the lesions last a week or two and leave no scars; they recur chronically and the exact cause is unknown—they have been ascribed to allergy, intoxications, emotions or have been considered as tuberculids.

Investigation might include the following approaches: Recheck the history of onset and recurrences; estimate the emotional

factor; consider the relationship of dental work; examine repeated smears for a causative agent; consider a biopsy, if any ulceration is chronic enough; skin test for the commonly ingested foods as well as the predominant organism in the feces; examine the lungs with the fluoroscope.

TREATMENT OF SYPHILIS

To the Editor:—**A white man aged 31 has been under treatment for syphilis for about one year. When first seen this patient had secondary lesions, and his serologic reaction was strongly positive. He was given a course of treatment with penicillin in beeswax and oil consisting of one daily injection for twenty days. This afforded no demonstrable benefit. He was then given semi-intensive therapy consisting of forty injections of oxophenarsine hydrochloride ("mapharsen") (0.06 Gm.) and sixteen injections of bismuth subsalicylate (0.2 Gm.) in twenty-six weeks. At the end of this course the patient had a negative Kolmer test and a strongly positive Mazzini. (The quantitative Mazzini determination was 41000-0.) One month later the Kolmer reaction was moderately positive, and at the present time both Kolmer and Mazzini tests are strongly positive. (The quantitative Mazzini is 44432-0.) There are no syphilitic lesions or clinical signs evident at this time. What further therapy is now recommended?**

Milton L. Caplan, M.D., Ellwood City, Pa.

ANSWER.—It is difficult to answer your letter because of insufficient data. First, you state that the patient's serologic reaction was strongly positive; but no mention is made about the titration of the serologic specimen, which should be done on every patient with early syphilis when he is given treatment. It is only by monthly titration of a specimen that the physician is in a position to accurately judge the course of the disease. Second, no mention is made about the amount of penicillin in beeswax and oil that was given at each injection. Also, it is difficult to understand what is meant by "no demonstrable benefit." Do you mean by this that his eruption did not clear up? It must be remembered that the reagin units in the blood do not drop to normal at once. It may be six to nine months or perhaps a year before a test will be completely negative, but if the trend of the monthly titrated test is downward the physician should not be alarmed.

The patient was then given a course of forty injections of "mapharsen" and sixteen injections of bismuth subsalicylate in twenty-six weeks, the so-called army treatment. You state that at the end of this he had a negative Kolmer test and a titrated Mazzini reading 41000-0. Unfortunately, you have no base line of previous titration on which to judge the real situation. One month after this treatment was discontinued his reaction to the Kolmer test was moderately positive, and at the present time, you do not say how long after treatment, both his Kolmer and Mazzini tests are strongly positive, though no syphilitic lesions or clinical signs of the disease are evident. Apparently you have not performed a lumbar puncture. Perhaps the patient has an involvement of the central nervous system. Of course, one would have to think of the possibility of a serologic relapse. A reinfection would hardly be considered, however, as the man apparently has had no further lesion.

PERIODIC SPASM OF THE LUMBAR MUSCLES

To the Editor:—**A woman aged 53, who has always done reasonably hard work, had an attack of acute lumbar pain two months ago with periodic spasm of the lumbar muscles occurring in paroxysms. X-rays showed compression of the first, third and fourth lumbar vertebral bodies and a severe osteoporosis. Blood calcium, phosphorus and phosphatase determinations were normal. A competent orthopedic consultant could offer no evidence of cause of the osteoporosis after five days' hospital observation except to suggest observation for possible parathyroid adenoma. Could the ingestion of half a teaspoon of magnesium sulfate every morning before breakfast for fifteen years have produced a chronic calcium deficiency? Would there be any other suggestion as to the diagnosis?**

C. W. Atherton, M.D., Fairview, Ill.

ANSWER.—Osteoporosis of the spine and also of other bones of the body in patients 60 years of age and older is very common. Occasionally, severe demineralization with sufficient weakening of the vertebral bodies to permit spontaneous compression has occurred in patients 50 years of age or younger.

Some of these patients have been found to be intermittently in negative calcium balance, which can be produced as a result of inadequate intake of calcium in the food, poor utilization of the calcium because of lack of an adequate amount of vitamin D, or as a result of abnormal mobilization and excretion of calcium. The small dosage of magnesium sulfate used by this patient would not seem to justify a conclusion that the calcium depletion of the spine was attributable to that.

Tumors of the myeloma type are a very common cause of spontaneous compression of vertebral bodies. Such tumors do produce extensive osteoporosis and may include multiple vertebrae with collapse of one or more where the stresses and strains of activity are most heavily placed.

Metastatic neoplastic lesions of the spine may also produce osteoporosis of vertebral bodies with varying degrees of compression. The reported normal values of the calcium, phosphorus and phosphatase of the blood would make the possibility of tumor of the spine or of parathyroid adenoma unlikely.

If there is no malignant condition this patient should respond to a program of therapy consisting of a supplement of a moderate dosage of vitamin D and inorganic calcium. Vitamin D is not readily absorbed by every adult. Such a preparation as "drisdol," which is a solution of vitamin D in propylene glycol, 10 drops twice daily taken in milk at meal time, with 10 Gm. of calcium lactate, has resulted in diminution of backache symptoms of patients such as the one described here. When continued for two or three years, the density of the bones has been found to improve. It should be remembered, however, that even with the supplements of vitamin D and calcium taken along with an adequate diet, only about 1 Gm. of calcium can be stored in any one day. Thus, if the patient has a generalized osteoporosis, several years may elapse before the total amount of calcium which has been lost from the bones can be restored to them.

TREATMENT OF ACTINOMYCOSIS

To the Editor:—**Please send me the latest treatment prescribed for actinomycosis.**

A. F. Lucas, M.D., Hornell, N. Y.

ANSWER.—There is no specific treatment for actinomycosis. Iodides are helpful for several of the deep mycotic infections, and, though they are helpful in many cases of actinomycosis and curative in a few, they are valueless in others. The sulfonamides are said to be effective in a few patients, and the same report has been given for penicillin. Radiation therapy is sometimes beneficial and should be used in conjunction with other measures. The affected tissue may be laid open widely to expose the sinuses thoroughly and provide aeration. In conjunction with this, oxygenating processes should be used, such as Meleney's zinc peroxide method. In addition, after exposing the depths of the affected tissues, some of the antibiotics, such as tyrothricin and bacitracin, may be useful for local application. In the meantime, the use of iodides should not be relaxed. In a few instances iodides have been more effective when the arsphenamines or arsenoxides have been given previously or simultaneously. In blastomycosis resistant to iodide therapy a specific vaccine given as a preliminary was said to cause the patient to respond well to this halogen. The patient's nutrition should be maintained, especially with respect to the blood proteins. If necessary amino acid therapy may be used and iron given for anemia.

REMOVAL OF BLACK POWDER STAINS

To the Editor:—**Has anything been found to remove black powder stains and carbon from the skin after it has been embedded for some time?**

L. Pellman Glover, M.D., Altoona, Pa.

ANSWER.—The treatment for such an accident resolves itself into that which has been developed for removing tattoo marks. Various methods have been employed, namely surgical, electrolytic and chemical. Where the tattoo mark is long and narrow the discolored scar may be excised if there is sufficient skin laxity to pull the edges together and form a fine scar at the suture line. Electrolytic methods have worked in a manner for some, but the method is long and tedious and not too certain of good results. A number of chemical methods have been used by various authors, but the one which has received the best corroboration is one reported by Shie. His method is that of Variot, published in 1888, on which several modifications have been made. This procedure employs a 50 per cent solution of tannic acid in water, which is continuously swabbed on the skin and through which tattooing is carried out. Shie recommended a cork into which six or eight fine cambric needles are closely embedded. A dental engine with a fine drill will work very well, but one must use care to avoid puncturing the chorium. The modern electrical tattooing needle perhaps would be easiest to use. The skin is kept covered with fresh tannic acid solution as the tattooing proceeds, eventually covering the entire affected part. When this has been done the excess tannic acid is removed by washing with cold water. Sterile petrolatum is then applied to the adjacent skin, and then a silver nitrate stick is rubbed vigorously into the tattooed area. This forms a heavy

deposit of silver tannate in the chorium. The petrolatum is wiped off and the field washed with cold water. The operator should wear rubber gloves. There is little pain, and no anesthetic is necessary except for sensitive areas, such as the face. There is little reaction following the operation—not more than that following the original tattooing. The parts may be covered with a simple dressing. If the operation is carried out properly there is but little scaling. In accidental tattooing, such as the inquirer refers to, the carbon particles are embedded somewhat more deeply than are those in ordinary tattooing. The procedure therefore must be carried out more deeply. It is recommended that the original article by Shie in THE JOURNAL, Jan. 14, 1928 be consulted.

SENILE OSTEOPOROSIS

To the Editor:—I would appreciate any suggestions which you might make in the following case: A woman aged 73 who shows a chronic degenerative process, with absorption of calcium from the vertebrae, resulting in the partial collapse of the twelfth dorsal and two lower lumbar bodies, also has a moderate fusiform aneurysm of the thoracic aorta and enlargement of the liver without ascites, considered to be a cirrhosis. Her blood pressure range is from 150 to 190 systolic, and 80 to 90 diastolic. There is no evidence of parathyroid tumor or of any malignant growth from which spinal metastases could occur. Her blood Wassermann reaction is negative. She has been placed on a high vitamin, high calcium diet and is getting large doses of dicalcium phosphate, viosterol and at times calcium gluconate and estrogens intramuscularly. The following are the findings on serum phosphatase, and blood calcium:

	January 1947	May 1947
Serum phosphatase	5.9	6.9
Blood calcium	10.5	9.9

The patient has been under treatment for six months, and the degenerative changes in the spinal vertebrae continue to be progressive. Several consultations have been held without any suggestions of practical benefit. The patient is confined to bed except for an hour a day, when she is allowed up wearing a back brace. Greater activity results in attacks of severe pain in the distribution of the thoracicolumbar nerve areas.

M.D., California.

ANSWER.—The patient is evidently suffering from senile osteoporosis of the spine. This occurs much oftener in women than in men and the cause is unknown. Therefore we are handicapped in our treatment. Patients of this type do not as a rule tolerate back braces very well, and she will have to restrict her activities to the pain and discomfort she has.

It has been found that aluminum acetate used only as a conveyor over long periods of time does seem to be a help, as shown by the x-rays. However, three, four to six months is necessary before any change can be noted in the x-rays. Care must be taken that the aluminum acetate is pure, as occasionally the drug is contaminated by the lead so that it is necessary to caution the pharmacist about this.

PAIN IN THE BREAST

To the Editor:—A white woman aged 29 complains chiefly of pain in the right breast. She has been married for five years and has one child, aged 2. The breast pain has been present about this long. The pain is localized in a small area about 3 cm. lateral to the right nipple. It is a sharp, severe, intermittent pain that does not radiate. She cannot correlate the pain with the menstrual cycle or with anything else; but it was entirely gone during pregnancy and lactation. The patient has been examined by six different gynecologists during the past five years. Five of them found nothing on physical examination; the sixth and most recent examiner stated that he could make out an ill defined painful nodule. The patient also has a rosacea form of acne which developed rather suddenly, immediately after marriage. Any comment as regards treatment would be appreciated.

M.D., Georgia.

ANSWER.—It is hazardous to speculate on the nature of this ill defined painful nodule on the breast of the patient. It seems to be under some sort of endocrine influence, as evidenced by the lack of pain during pregnancy and lactation. Nevertheless the pain cannot be correlated to the menstrual cycle. During pregnancy even though there is no ovarian cycle there is an abundance of ovarian hormones circulating in the blood stream. It is possible that the increased progesterone in the pregnant woman may neutralize the effects of estrogens, which are acknowledged to be mainly responsible for cystic mastitis, the most likely cause of this breast pain. Estrogens would therefore appear to be of little value in an attempt to relieve the patient of this pain. Androgens, which neutralize the endogenous estrogen, may be of value. The patient is obviously under some sort of nervous tension associated with her marriage, as indicated by the development of acne rather suddenly after her marriage. Androgens in moderate doses should not aggravate this condition.

SCIATIC NEURITIS

To the Editor:—Will you kindly give me information concerning diagnosis and treatment of sciatic neuritis? The patient has had two operations for nucleus pulposus, with little or no relief. She is now having the third attack of sciatic neuritis. Any treatment concerning cure of this condition will be appreciated.

M.D., Virginia.

ANSWER.—There are many general and local conditions which will produce sciatic neuritis or pain in the course of the sciatic nerve, although protrusion of an intervertebral disk is one of the commonest causes of sciatic pain. Tumors, metabolic disturbances, arthritis and inflammatory lesions of the spinal cord and roots must be excluded. Obviously the treatment depends on an accurate diagnosis. The treatment is sometimes medical and sometimes surgical. Repeated operations on the spinal column and exposure of the spinal cord are to be avoided. Undoubtedly adhesions form after these operations and patients go through periods of considerable discomfort. The tendency is for them to gradually get well, although they may go through a number of attacks. Since this patient has had exploration by a neurosurgeon and the trouble has been proved to be not a tumor, conservative treatment would seem to be in order—rest in bed whenever necessary, heat and acetylsalicylic acid.

UREA CRYSTALS AND URTICARIA

To the Editor:—I have been using urea crystals as a wound dressing in cavernostomy. The patient developed a very severe urticaria. Do you feel that this was due to the urea or possibly some by-product?

J. G. Beaton, M.D., Pontiac, Mich.

ANSWER.—It is unlikely that the urticaria of the patient mentioned was due to the use of urea crystals in the wound. Urea is a normal constituent of tissue fluids. It would be incompatible with our present knowledge of allergy to suspect that such a substance could cause an allergic reaction, nor is it very likely that any product derived directly from urea should cause the urticaria.

It is possible that a patient who has had a cavernostomy has had one or more drugs that are common causes of urticaria preceding, during or following the operation. (Barbiturates? Hypnotics? Organic compounds used as cathartics?)

In addition, the increased absorption of bacterial proteins or the products of bacterial metabolism or the products of disintegration of the patient's tissue have to be taken into account as possible causes of an attack of urticaria.

PORTAL-MESENTERIC VEIN THROMBOSIS

To the Editor:—A man aged 40 had deep vein phlebothrombosis in both lower extremities following a fracture of the right big toe (most likely a saddle type in the common iliac veins). After recovering from this condition, about two years later, he was seized with a sudden abdominal pain, went into shock and died. The autopsy revealed a portal-mesenteric vein thrombosis. Could there be any connection or cause of relation between the conditions described?

Sidney H. Joffe, M.D., Paterson, N. J.

ANSWER.—On the data given there is no reason to assume a causal relationship between the conditions described. Neither clinical nor postmortem experience indicates that phlebothrombosis in the systemic venous system predisposes to a similar condition in the portal circulation.

AIR IN THE SYSTEMIC CIRCULATION

To the Editor:—Is it possible for air to pass from the systemic circulation through the lungs and cause embolism to the brain without septal defect in the heart?

Lorne E. Brown, Captain, M. C., San Francisco.

ANSWER.—Air can get into the systemic arterial circulation by way of the pulmonary veins but apparently not by way of the right side of the heart, except in the case of congenital defects as with the tetralogy of Fallot. In order that air may enter the systemic arteries from the pulmonary veins there must be some injury in the chest, traumatic or surgical, which can so introduce the air.

ANTHRAX IN ELEPHANTS

To the Editor:—In The Journal of July 26, page 1140, it states that no reference to anthrax in man contracted from elephants can be found. Keepers at the London Zoo contracted malignant pustule from elephants (in 1927). References are the *Veterinary Record* of Jan. 22, 1927, page 91, and Feb. 12, 1927, page 165. I bring this to your notice so that you may inform your correspondent in case legal action was taken involving compensation.

J. S. Steward, F.R.C.V.S., Wilmslow, Cheshire, England.